Author Index to Volume 16

Abijaoude, M. T.: See Munk, P.

Aharoni, S. M. and Harget, P. J.: On the Location of Chain-Ends in Rapidly Crystallized Poly(ethylene Terephthalate), 159

Aiura, M.: See Hashimoto, T.

Andrianova, G. P., Arutyunov, B. A., and Popov, Yu. V.: Calorimetric Studies of Poly-(ethylene Terephthalate) Stretching Over a Wide Temperature Range, 1139

Arai, H., Yamaguchi, K., Mitomo, H., and Kuriyama, I.: Fine Structure of Polyethylene Prepared by γ-Ray-Induced Polymerization in Various Solvents. III. Selective Degradation with Ozone, 841

Araimo, L., de Candia, F., Vittoria, V., and Peterlin, A.: Mechanical and Transport Properties of Drawn Low-Density Polyethylene, 2087

Argay, Gy.: See Simon, P.

Arridge, R. G. C. and Barham, P. J.: A Theory for the Drawing of Oriented Crystalline Polymers, 1297

Arutyunov, B. A.: See Andrianova, G. P.

Asai, K.: See Miyaji, H.

Ashida, M., Ueda, Y., and Watanabe, T.: Epitaxial Growth of Low Molecular Weight Polypropylene from Vapor Phase, 179

Ast, D. G.: See Kramer, E. J.

Avitabile, G., Napolitano, R., and Riva, F.: Elastic Modulus of the Crystalline Phase of Poly(*cis* 1,4-Isoprene), 1983

Axelson, D. E.: See Benson, R.

—— and Mandelkern, L.: An Upper Limit to the Glass Temperature of Linear Polyethylene as Determined by High-Field Carbon-13 Fourier Transform Nuclear Magnetic Resonance, 1135

Azuma, C.: See Rahrig, D.

Badami, D. V.: See Harwood, C.

Baer, E.: See Rickert, S. E.

Balik, C. M. and Hopfinger, A. J.: A Model for the Adsorption of Poly (γ-Benzyl-L-Glutamate) from Solution onto Alkali–Halide Substrates, 1897

Barham, P. J.: See Arridge, R. G. C.

Barker, R. E., Jr.: See Frost, R. S.

Barrall, E. M., II, Clarke, T. C., and Gregges, A. R.: A Differential Scanning Calorimeter Study of the Crystal Forms and Polymerization Kinetics of 2,4-Hexadiynyl-1,6-*bis*(*p*-Toluenesulfonate), 1355

——: See Gipstein, E.

Bates, F. S.: See Ramos, A. R.

Bell, J. P. and Hughes, A. J.: Selective Degradation of Nylon 6,6. II. Application of the Degradation Technique to Commercially Drawn Fibers, 215

——: See Hughes, A. J.

——: See Sweet, G. E.

Benoit, H.: See Marchal, E.

Benson, R., Maxfield, J., Axelson, D. E., and Mandelkern, L.: Gelation and Precipitation of Copolymers from Solution, 1583

Bergmann, K.: Study of the Molecular Motions of Polyethylene by Lineshape Analysis of Broad-Line Proton NMR Spectra, 1611

Biebuyck, J. J.: See Godard, P.

Blasius, J.: See Stoeckel, T. M.

Blinc, R.: See Zupančič, I.

Block, H., Ions, W. D., and Walker, S. M.: Observations on the Dielectric Anisotropy of Solutions of Flexible Polymers in Flow, 989

Bohdanecky, M. and Petrus, V.: Graphical Treatment of Sedimentation Coefficients of Randomly Branched Polymers, 1705

Bonner, D. C.: See Cheng, Y. L.

Boucher, E. A. and Hines, P. M.: Properties of Aqueous Salt Solutions of Poly(ethylene Oxide): Thermodynamic Quantities Based on Viscosity and Other Measurements, 501

Boudeulle, M.: See Moser, M.

Bower, D. I.: See Robinson, M. E. R.

Boyd, R. H.: See Mansfield, M.

——: See Sayre, J. A.

Boyer, R. F.: See Miller, R. L.

Brady, L. E.: See Parsons, W. F.

Brown, H. R.: Flory–Huggins–Rehner Theory and the Swelling of Semicrystalline Polymers by Organic Fluids, 1887

Brown, N., Metzger, B. D., and Imai, Y.: An Equation for Creep in Terms of Craze Parameters, 1085

Bubeck, R. A.: See Kramer, E. J.

Budnitsky, Y.: See Makarewicz, P. J.

Buleon, A. and Chanzy, H.: Single Crystals of Cellulose II, 833

Burnett, L. J., Rottler, C. L., and Laughon, D. H.: Proton NMR Study of Molecular Motion in Polydimethylsiloxane, 341

Capaccio, G., Ward, I. M., and Wilding, M. A.: The Plastic Deformation of γ-Irradiated Linear Polyethylene, 2083

Carlsson, D. J.: See Garton, A.
Carr, S. H.: See Stupp, S. I.
Carter, T. J.: See McAllister, P. B.
Chance, R. R. and Patel, G. N.: Solid-State Polymerization of a Diacetylene Crystal: Thermal, Ultraviolet, and γ-Ray Polymerization of 2,4-Hexadiyne-1,6-Diol *Bis*-(*p*-Toluene Sulfonate), 859
——: See Yee, K. C.
Chanzy, H.: See Buleon, A.
Chao, R. S.: See Jasse, B.
Charlesby, A.: See Folland, R.
Chatani, Y.: See Kusanagi, H.
Chen, M. C.: See Maxfield, J.
Chen, R. Y. S.: See Frost, R. S.
Cheng, Y. L., and Bonner, D. C.: Solubility of Nitrogen and Ethylene in Molten, Low-Density Polyethylene to 69 Atmospheres, 319
Chow, T. S.: Effect of Particle Shape at Finite Concentration on the Elastic Moduli of Filled Polymers, 959
——: Effect of Particle Shape at Finite Concentration on Thermal Expansion of Filled Polymers, 967
Chung, C. I. and Lin, M. I.: Nature of Melt Rheological Transition in a Styrene-Butadiene-Styrene Block Copolymer, 545
Clarke, T. C.: See Barrall, E. M., II
Coates, P. D. and Ward, I. M.: Hydostatic Extrusion of Polyoxymethylene, 2031
Cohen, R. E.: See Ramos, A. R.
Coleman, M. M. and Petcavich, R. J.: Fourier Transformation Infrared Studies on the Thermal Degradation of Polyacrylonitrile, 821
——: See Painter, P. C.
——: See Stoeckel, T. M.
Crist, B. J.: See Matyi, R. J.
Cudby, M.: See Lemstra, P. J.

Daniels, H. E.: See Haward, R. N.
Daumerie, M.: See Godard, P.
Day, D. and Lando, J. B.: Structural Relationships in the Solid-State Synthesis of Poly-(*bis*-Phenyl Glutarate Diacetylene), 1009
de Candia, F.: See Araimo, L.
de Gennes, P. G.: Scaling Laws for Incompatible Polymer Solutions, 1883
De Meringo, A. H.: See Stern, S. A.
Desper, C. R.: See Kojima, S.
Dimarzio, E. A. and Rubin, R. J.: Dynamics of a Polymer Attached to a Surface: Bead and Spring Model, 457
Dimov, K.: See Gutzow, I.
Dochev, V.: See Gutzow, I.
Dole, M.: See Patel, V. M.
Dransfeld, K.: See Sussner, H.

Earnest, T. R., Jr., and MacKnight, W. J.: Effect of Hydrogen Bonding and Ionic Aggregation on the Melt Rheology of an Ethylene–Methacrylic Acid Copolymer and Its Sodium Salt, 143
Eichinger, B. E.: See Yen, L. Y.
Eisenberg, A. and Trepman, E.: Ion-Aggregation and Thermal Expansion in Styrene-Based Ionomers, 1381
——: See Yoon, H. N.
Erman, B. and Flory, P. J.: Rubber Elasticity in the Range of Small Uniaxial Tensions and Compressions. Results for Poly(dimethylsiloxane), 1115
Evans, J. T., and White, J. R.: Elastic Deformation in Polyethylene Crystals Subjected to a Tensile Stress Distributed over a Fold Surface, 379

Faust, M. A.: See Parsons, W. F.
Ferry, J. D.: See Rosser, R. W.
Fleming, R. J.: Kinetic Order of Thermoluminescence, 1703
Florin, R. E.: Free Radicals in Stretched Vinylidene Chloride Copolymer, 1877
Flory, P. J.: See Erman, B.
Folland, R., Steven, J. H., and Charlesby, A.: Proton Spin Relaxation in Liquid Polydimethylsiloxane: Molecular Motion and Network Formation, 1041
Frisch, H. L.: Simultaneous Nonlinear Diffusion of a Solvent and Organic Penetrant in a Polymer, 1651
Frost, R. S., Barker, R. E., Jr., and Chen, R. Y. S.: Influence of Pressure and Chemical Structure on the Thermal Conductivity of Vitreous Poly(alkyl Methacrylates). II. Relation to Free Volume, 689
Fujimura, T., Hayakawa, N., and Kuriyama, I.: Trapping Regions for Allyl Radicals in Irradiated Polyethylene, 945
Fujita, H.: See Norisuye, T.
Fukuda, A.: See Sumita, O.

Garg, S. K. and Stivala, S. S.: Assessment of Branching in Polymers from Small-Angle X-Ray Scattering (SAXS), 1419
Gargallo, L.: See Radic, D.
Garton, A., Stepaniak, R. F., Carlsson, D. J., and Wiles, D. M.: Some Effects of Melt-Induced Orientation on Drawing of Polypropylene Monofilaments, 599
Gaur, U.: See Mehta, A.
Ghiggino, K. P., Wright, R. D., and Phillips, D.: Time-Resolved Fluorescence Spectroscopy of Polystyrene and Poly(1-Vinylnaphthalene), 1499
Gibson, A. G. and Ward, I. M.: Hydrostatic

Extrusion of Linear Polyethylene: Effects of Molecular Weight and Product Diameter, 2015
Gilchrist, J. Le G.: Low-Temperature Dielectric Spectrum of Thermally Oxidized Polyethylene, 1773
Gilmour, I., Trainor, A., and Haward, R. N., Calculation of the Grüneisen Constant of Glassy Polymers from Thermoelastic Data, 1291
——, ——, and ——: The Thermoelastic Effect in Glassy Polymers, 1277
Gipstein, E., Barrall, E. M., II, Yoon, D. Y., and Lyerla, J.: Thermal Properties of Some Hydrogenated Poly(α-Methyl Styrenes), 1389
Gleiter, H.: See Miles, M.
Godard, P., Biebuyck, J. J., Daumerie, M., Naveau, H., and Mercier, J. P.: Crystallization and Melting of Aqueous Gelatin, 1817
Gregges, A. R.: See Barrall, E. M., II
Gruner, C. L.: See Kambour, R. P.
Gutzow, I., Dochev, V., Pancheva, E., and Dimov, K.: Induced Crystallization of Poly(ethylene Terephthalate) on Small Metallic Nucleating Particles, 1155
Gvozdic, N.: See Patel, V. M.

Hadjichristidis, N. and Roovers, J.: Conformation of Poly(isoprene-*g*-Styrene) in Dilute Solution, 851
Hagedorn, W.: See Strobl, G. R.
Halbrook, M. E.: See Munk, P.
Hall, I. H., Pass, M. G., and Rammo, N. N.: The Structure and Properties of Oriented Fibers of Poly(pentamethylene Terephthalate). I. Synthesis of Polymer and Preparation of Two Different Crystalline Phases, 1409
—— and Rammo, N. N.: The Structure and Properties of Oriented Fibers of Poly(pentamethylene Terephthalate). II. Structural Analysis of Two Different Crystalline Phases by X-Ray Crystallography, 2189
Halley, J. W., Kleban, P. H., and Onffroy, J. R.: Theory of Second-Order Raman Scattering from a Zigzag Chain with Application to Polyethylene, 189
Harakawa, K.: See Takahashi, K.
Harget, P. J.: See Aharoni, S. M.
Hanson, M. A.: See Jones, A. A.
Harrison, I. R.: See Painter, P. C.
——: See Runt, J.
Harwood, C., Wostenholm, G. H., Yates, B., and Badami, D. V.: Thermodynamic Properties of Phenol-Formaldehyde Resin, 759
Hashimoto, T., Kawasaki, H., and Kawai, H.: Crystal and Amorphous Orientation Behavior of Poly(chlorotrifluoroethylene) Films in Relation to Crystalline Superstructure, 271
——, Sasaki, H., Aiura, M., and Kato, Y.: High-Speed Aqueous Gel-Permeation Chromatography, 1789
——, Sakai, T., and Miyata, S.: Thermally Stimulated Current from Extended-Chain Crystals of Polyethylene, 1965
Hashiyama, M. and Stein, R. S.: Birefringence of Filled Rubbers, 29
Havlíček, I., Ilavský, M., and Hrouz, J.: Dependence of Cooperative Relaxation of Amorphous Polymers on Diluent Concentration, 653
Haward, R. N., Daniels, H. E., and Treloar, L. R. G.: Molecular Conformation and Craze Fracture, 1169
——: See Gilmour, I. W.
Hay, J. N. and Przekop, Z. J.: On A Nonexponential Transformation Equation for Spherulitic Crystallization, 81
Hayakawa, N.: See Fujimura, T.
Hinde, R. M.: See McAllister, P. B.
Hines, P. M.: See Boucher, E. A.
Hobbs, S. Y.: Characterization of Rubber-Toughened Plastics by Scanning Electron Microscopy, 1321
Holik, A. S.: See Kambour, R. P.
Holoubek, J.: An Approximate Method of Determination of Birefringence of Circular Fibers from Intensity Distribution of Back-Scattered Light, 1665
Hoogervorst, C. J. P., Smit, J. A. M., and Staverman, A. J.: Nonstationary Diffusion of Polystyrenes through a Cellophane Membrane, 297
Hopfinger, A. J.: See Balik, C. M.
Horii, F. and Kitamaru, R.: Refined NMR Analysis of the Phase Structure of Solution-Crystallized Linear Polyethlene, 265
Houwaart, A. C.: See Odijk, T.
Hrouz, J.: See Havlíček, I.
Hsu, C. S.: See Patel, V. M.
Hsu, S. L.: See Krimm, S.
Hughes, A. J. and Bell, J. P.: Selective Degradation of Nylon 6,6. I. Description of the Degradation Technique and Preliminary Morphological Characterization, 201
——: See Bell, J. P.

Ieda, M.: See Takai, Y.
Igarashi, T.: Mechanics of Peeling of Rubbery Materials. II. Initiation and Propagation of Peeling, 407
Iijima, T., Uemura, T., Tsuzuku, S., and Komiyama, J.: Diffusion of Cyclodextrins in Aqueous Polymer Solutions, 793
Ikada, E., Sugimura, T., and Watanabe, T.: Dielectric Properties of Oligomers. VI.

End-Group Effects in Vinyl Acetate and Methyl Methacrylate Oligomers, 907
Ikeda, M.: See Takahashi, K.
Ikeno, S., Yokoyama, M., and Mikawa, H.: Electrically Conductive Elastomeric TCNQ Complexes, 717
Ilavský, M.: See Havlíček, I.
Imai, Y.: See Brown, N.
Ions, W. D.: See Block, H.
Ishikawa, M.: See Narisawa, I.
Ito, M., Kubo, M., Tsuruta, A., and Tanaka, K.: The Relationship between Chemical Structure and Viscoelastic Properties of Linear Aliphatic Polyesters, 1435
Ito, Y. and Shishido, S.: Non-Newtonian Flow Curves Including Lower and Upper Newtonian Regions for Dilute and Moderately Concentrated Polystyrene Solutions, 725
Iwasa, Y.: See Mashimo, S.

Jain, R. K.: See Simha, R.
Jarry, J. P. and Monnerie, L.: Orientation and Molecular Dynamics in Uniaxial Polymers. I. Theory of Fluorescence Polarization, 443
Jasse, L., Chao, R. S., and Koenig, J. L.: Laser Raman Scattering in Uniaxially Oriented Atactic Polystyrene, 2157
—— and Koenig, J. L.: Fourier Transform Infrared Analysis of the Stereoregularity of Atactic Polystyrene, 1869
Jones, A. A., Lubianez, R. P., Hanson, M. A., and Shostak, S. L.: Interpretation of Spin Relaxation in Polyisobutylene in Terms of Specific Motions, 1635
Jones, D. A., Lopez de Haro, M., and Pugh, D.: A Simple Model Illustrative of Some Features of Polymer Dynamics, 2214
Joseph, S. H.: Cooperative Model for the Mechanical Deformation of Polymers, 1071

Kambour, R. P. and Gruner, C. L.: Effects of Polar Group Incorporation on Crazing of Glassy Polymers: Styrene-Acrylonitrile Copolymer and a Dicyano Bisphenol Polycarbonate, 703
——, Holik, A. S., and Miller, S.: Plane-Strain Fracture Energy Instability and Mixed Mode Crack Propagation in Polycarbonate at Room Temperature, 91
Kamoshida, T.: See Yano, O.
Kanetsuma, H.: See Kyotani, H.
Kato, Y.: See Hashimoto, T.
Kawai, H.: See Hashimoto, T.
Kawasaki, H.: See Hashimoto, T.
Keller, A.: See Lemstra, P. J.
Kitamaru, R.: See Horii, F.
Kleban, P. H.: See Halley, J. W.
Knox, J. R.: See Wang, J.-S.
Koberstein, J.: See Russell, T. P.
Koenig, J. L.: See Jasse, B.
Kojima, S., Desper, C. R., and Porter, R. S.: Influence of Extrusion Ratio on the Thermal Properties and Morphology of Ultradrawn High-Density Polyethylene, 1721
—— and Porter, R. S.: Influence of Extrusion Ratio on the Tensile Properties of Ultradrawn Polyethylene, 1729
Komiyama, J.: See Iijima, T.
Koros, W. J. and Paul, D. R.: CO_2 Sorption in Poly(ethylene Terephthalate) above and below the Glass Transition, 1947
—— and ——: Transient and Steady-State Permeation in Poly(ethylene Terephthalate) Above and Below the Glass Transition, 2171
Kovacs, A. J.: See Rickert, S. E.
Kramer, E. J. and Bubeck, R. A.: Growth Kinetics of Solvent Crazes in Glassy Polymers, 1195
——, Krenz, H. G., and Ast, D. G.: Mechanical Properties of Methanol Crazes in Poly(methyl Methacrylate), 349
Krause, S. J.: See Snyder, R. G.
Krenz, H. G.: See Kramer, E. J.
Krigbaum, W. R. and Salaris, F.: Thermodynamics of Nematic Phases Formed from Semiflexible Chain Polymers, 883
Krimm, S. and Hsu, S. L.: Longitudinal Acoustic Mode in Polymers. IV. LAM-3 of the General Perturbed Rod and Applications to Paraffins and Polymers, 2105
Kurumizawa, T.: See Takahashi, Y.
Kubo, M.: See Ito, M.
Kuriyama, I.: See Arai, H.
——: See Fujimura, T.
Kusanagi, H., Takase, M., Chantani, Y., and Tadokoro, H.: Crystal Structure of Isotactic Poly(4-methyl-1-Pentene), 131
——: See Takahashi, Y.
Kuze, E.: See Sumita, O.
Kyotani, H., Kanetsuma, H., Sasaki, K., and Ōya, M.: Effect of Organic Solvents on the Conformational Stability of Poly(β-benzyl L-Aspartate) Films, 367

Lahajnar, G.: See Zupančič, I.
Lando, J. B.: See Day, D.
Laughon, D. H.: See Burnett, L. J.
Lemstra, P. J., Keller, A., and Cudby, M.: Gelation Crystallization of Poly(vinyl Chloride), 1507
Lenz, R. W.: See Weiss, R. A.
Lepori, L. and Mollica, V.: Volumetric Properties of Dilute Aqueous Solutions of Poly(ethylene Glycols), 1123
Li, H. M. and Magill, J. H.: Crystallization of Poly(tetramethyl-*p*-Silphenylene-Di-

methylsiloxane) (TMPS–DMS) Block Copolymers: Morphology and Kinetics, 1059
Lieser, G.: See Meyer, W.
Lin, M. I.: See Chung, C. I.
Linkens, A.: See Vanderschueren, J.
Lopez de Haro, M.: See Jones, D. A.
Lubianez, R. P.: See Jones, A. A.
Lyerla, J.: See Gipstein, E.

MacKnight, W. J.: See Earnest, T. R., Jr.
——: See Rahrig, D.
——: See Weiss, R. A.
Maddams, W. F.: See Robinson, M. E. R.
Magill, J. H.: See Li, H. M.
Makarewicz, P. J. and Wilkes, G. L.: Diffusion Studies of Poly(ethylene Terephthalate) Crystallized by Nonreactive Liquids and Vapors, 1529
—— and ——: Small-Angle X-Ray Scattering and Crystallization Kinetics of Poly(ethylene Terephthalate) Crystallized in a Liquid Environment, 1559
——, ——, and Budnitsky, Y.: Mechanical Property Studies of Poly(ethylene Terephthalate) Crystallized by Nonreactive Liquids, 1545
Malone, M. F.: See Tirrell, M.
Mandel, M.: See Paoletti, S.
Mandelkern, L.: See Axelson, D. E.
——: See Benson, R.
Manley, R. St. John: See Wittman, J. C.
Mansfield, M. and Boyd, R. H.: Molecular Motions, the α Relaxation, and Chain Transport in Polyethylene Crystals, 1227
Manson, J. A.: See Siegfried, D. L.
Marchal, E., Benoit, H., and Vogl, O.: Comparison of Head-to-Head and Head-to-Tail Polystyrenes by Thermally Stimulated Discharge, 949
Martinelli, F. J.: A New Technique for Studying Gelation in Polyesters, 1519
Mashimo, S., Yagihara, S., and Iwasa, Y.: Dielectric Study of Side-Group Rotation of Methyl Methacrylate in Copolymers, 1761
Matsushige, K. and Takemura, T.: Melting and Crystallization of Poly(vinylidene Fluoride) under High Pressure, 921
Matyi, R. J. and Crist, B., Jr., Small-Angle X-Ray Scattering by Nylon 6, 1329
Maxfield, J., Stein, R. S., and Chen, M. C.: Polarized Raman Studies of Crystalline and Amorphus Orientation in Polyethylene, 37
——: See Benson, R.
McAllister, P. B., Carter, T. J., and Hinde, R. M.: Structure of the Quenched Form of Polypropylene, 49
Meissner, J.: Combined Constant Strain Rate and Stress Relaxation Test for Linear Viscoelastic Studies, 915
Mercier, J. P.: See Godard, P.
Metherell, C.: Effect of Ozone on Creep of Vulcanizates, 813
Mehta, A., Gaur, U., and Wunderlich, B.: Equilibrium Melting Parameters of Poly(ethylene Terephthalate), 289
Metzger, B. D.: See Brown, N.
Meyer, C. T. and Pineri, M.: Ion Clustering in a Butadiene, Styrene, 4-Vinylpyridine Terpolymer Crosslinked by Coordination with Iron(III) Chloride, 569
Meyer, M., Vander Sande, J., and Uhlmann, D. R.: On the Structure of Glassy Polymers. VI. Electron Microscopy of Polycarbonate, Poly(ethylene Terephthalate), Poly(vinyl Chloride), and Polystyrene, 2005
Meyer, W., Lieser, G., and Wegner, G.: Four-Center Photopolymerization. A Heterogeneous Topochemical Solid-State Reaction, 1365
Mijnlieff, P. F. and Wiegel, F. W.: Intrinsic Viscosity and Friction Coefficient of Polymer Molecules in Solution: Porous Sphere Model, 245
Mikawa, H.: See Ikeno, S.
Miles, M. and Gleiter, H.: Observation of Preferred (epitaxial) Orientation Relationships between Polyethylene Crystals, 171
Miller, R. L. and Boyer, R. F.: Chain Folding and Cross-Sectional Area per Chain, 371
Miller, S.: See Kambour, R. P.
Misra, A.: See Russell, T. P.
Mitomo, H.: See Arai, H.
Miyata, S.: See Hashimoto, T.
Miyaji, H. and Asai, K.: Effects of Annealing on Lattice Constants of Branched Polyethylene, 1325
Mizutani, T.: See Takai, Y.
Mollica, V.: See Lepori, L.
Monnerie, L.: See Jarry, J. P.
Mori, K.: See Takai, Y.
Moser, M. and Boudeulle, M.: Isotactic Poly(penetene-1): Polymorphism of Form I, 971
Moynihan, C. T.: See Sasabe, H.
Munk, P., Abijaoude, M. T., and Halbrook, M. E.: Intrinsic Viscosity of Polystyrene in Mixed Solvents, 105

Nakanishi, H., Ueno, K., and Sasada, Y.: Four-Center-Type Photopolymerization in the Crystalline State. XI. Crystal Structure of *p*-Phenylenediacrylic Acid Diethyl Ester above the Crystal Transition Point, 767

Napolitano, R.: See Avitabile, G.
Narisawa, I., Ishikawa, M., and Ogawa, H.: Delayed Yielding of Polycarbonate under Constant Load, 1459
Naveau, H.: See Godard, P.
Nemoto, N.: See Rosser, R. W.
Nielsen, L. E.: See Steger, T. R.
Nitta, K.: See Ohno, N.
Norisuye, T. and Fujita, H.: Intrinsic Viscosity and Translational Friction Coefficient of Nondraining Flexible Rings with Small Excluded Volume, 999
Northolt, M. G. and Stuut, H. A.: Determination of the Crystal Density of Polymers by X-Ray Diffraction, 939
Nyström, B.: See Roots, J.

Odijk, T. and Houwaart, A. C.: On the Theory of the Excluded-Volume Effect of a Polyelectrolyte in a 1-1 Electrolyte Solution, 627
O'Donnell, J. H., Smith, C. A., and Winzor, J. D.: Evaluation of Radiation Chemical Yields from the Reciprocal Relationship between Irradiation Dose and Weight-Average Molecular Weight, 1515
Ogawa, H.: See Narisawa, I.
Ohno, N., Okuda, T., Nitta, K., and Sugai, S.: Conformational Transition of Copolymer of Maleic Acid and Styrene in Aqueous Solution. III., 513
Onffroy, J. R.: See Halley, J. W.
Okazaki, H.: See Takahashi, T.
Okuda, T.: See Ohno, N.
Ōya, M.: See Kyotani, H.

Painter, P. C., Runt, J., Coleman, M. M., and Harrison, I. R.: Effect of Polymorphism on the C—H Stretching Region of the Infrared Spectrum of Polyethylene, 1253
Pancheva, E.: See Gutzow, I.
Paoletti, S., van der Touw, F., and Mandel, M: Dielectric Properties of Maleic Acid—Ethylene Copolymer in Salt-Free Aqueous Solutions, 641
Parent, R. R. and Thompson, E. V.: Fracture Surface Morphology and Phase Relationships of Polystyrene/Poly(methyl Methacrylate) Systems. I. Low-Molecular-Weight Polystyrene in Poly(methyl Methacrylate), 1829
Parry, D. E. and Thomas, J. M.: Exploratory Analysis of the Influence of Substitutional Impurities on the Electronic Properties of Poly(sulfur Nitride), 1023
Parsons, J. W.: See Russell, T. P.
Parsons, W. F., Faust, M. A., and Brady, L. E.: Morphology and Rheology of Peel of Model Adhesives, 775
Pass, M. G.: See Hall, I. H.
Patel, G. N.: See Chance, R. R.
——: See Patel, V. M.
Patel, V. M., Patel, G. N., Gvozdic, N., Hsu, C. S., and Dole, M.: Radiation Chemistry of Polyethylene. XIV. Allyl Radical Decay Kinetics in Different Types of Polyethylene, 467
Paul, D. R.: See Koros, W. J.
Petcavich, R. J.: See Coleman, M. M.
Peterlin, A.: See Araimo, L.
——: See Zupančič, I.
Petrus, V.: See Bohdanecky, M.
Phillips, D.: See Ghiggino, K. P.
Pilař, J. and Ulbert, K.: An ESR Study of PMMA Mechanoradicals and Their Interaction with Oxygen, 1973
Pineri, M.: See Meyer, C. T.
Popov, Yu. V.: See Andrianova, G. P.
Porter, R. S.: See Kojima, S.
——: See Wang, J.-S.
Priel, Z. and Silberberg, A.: The Thickness of Adsorbed Polymer Layers at a Liquid-Solid Interface as a Function of Bulk Concentration, 1917
Prud'Homme, R.: See Russell, T. P.
Przekop, Z. J.: See Hay, J. N.
Pugh, D.: See Jones, D. A.

Radic, D. and Gargallo, L.: Properties of Vinylpyrrolidone-*tert*-Butylphenyl Methacrylate Copolymers in Solution, 977
Rahrig, D., Azuma, C., MacKnight, W. J.: Dynamic Mechanical and Dielectric Properties of Phosphonylated Polypentenamers and their Hydrogenated Derivatives, 59
Rammo, N. N.: See Hall, I. H.
Ramos, A. R., Bates, F. S., and Cohen, R. E.: Importance of the Massa Correction for Loss Tangent Measurements on the Rheovibron, 753
Reid, R. F. and Soutar, I.: Intramolecular Excimer Formation in Macromolecules. I. Energy Migration and Excimer Formation in Copolymers Exhibiting Nearest-Neighbor Excimer Interactions, 231
Reneker, D. H.: See Zupančič, I.
Renninger, A. L. and Uhlmann, D. R.: Structure of Glassy Polymers. V. Small-Angle X-Ray Scattering from Polystyrene, 2237
Riande, E.: Dielectric Properties of Aromatic Polyesters: Relaxation Behavior of Poly(diethylene Glycol Terephthalate), 1
Richardson, I. D. and Ward, I. M.: Temperature Dependence of the Poisson's Ratios in Low-Density Polyethylene with Parallel Lamellas Morphology, 667
Rickert, S. E., Baer, E., Wittmann, J. C., and Kovacs, A. J.: Epitaxial Crystallization of

Polyesters on Inorganic and Organic Substrates, 895
Riva, F.: See Avitabile, G.
Robinson, M. E. R., Bower, D. I., and Maddams, W. F.: Molecular Orientation in Poly(vinyl Chloride) Studied by Raman Spectroscopy and Birefringence Measurements, 2115
Roels, J. P. M.: See Soeteman, A. A.
Roots, J. and Nyström, B.: Concentration and Temperature Dependence of the Refractive Index Increment of a Polystyrene Sample in *trans*-Decalin, 695
Roovers, J.: See Hadjichristidis, N.
Rosser, R. W., Nemoto, N., Schrag, J. L., and Ferry, J. D.: Infinite-Dilution Viscoelastic Properties of Sodium Poly(styrene Sulfonate), 1031
Rottler, C. L.: See Burnett, L. J.
Rowell, R. L.: See Russell, T. P.
Rubin, R. J.: See Dinarzio, E. A.
Runt, J. and Harrison, I. R.: On the Location of Chain Ends in Polyethylene Single Crystals, 375
——: See Painter, P. C.
Russell, T. P., Koberstein, J., Prud'Homme, R., Misra, A., Stein, R. S., Parsons, J. W., and Rowell, R. L.: A Calibration Procedure for a Low-Angle Light-Scattering Apparatus, 1879

Sakai, T.: See Hashimoto, T.
——: See Takahashi, K.
Salaris, F.: See Krigbaum, W. R.
Sasada, Y.: See Nakanishi, H.
Sasabe, H. and Moynihan, C. T.: Structural Relaxation in Poly(vinyl Acetate), 1447
Sasaki, H.: See Hashimoto, T.
Sasaki, K.: See Kyotani, H.
Sayre, J. A. Swanson, S. R., and Boyd, R. H.: The Effect of Pressure on the Volume and the Dielectric Relaxation of Linear Polyethylene, 1739
Scherer, J. R.: See Snyder, R. G.
Schrag, J. L.: See Rosser, R. W.
Schultz, J.: See Shanahan, M. E. R.
Sekiyama, S.: See Yano, O.
Shanahan, M. E. R. and Schultz, J.: Influence of Wetting Properties of the Liquid on Environmental Stress Cracking of Polyethylene at High Stress, 803
Shepelev, M.: See Zlatkevich, L.
Shibayama, K.: See Tanaka, T.
Shishido, S.: See Ito, Y.
Shostak, S. L.: See Jones, A. A.
Siegfried, D. L., Manson, J. A., and Sperling, L. H.: Viscoelastic Behavior and Phase Domain Formation in Millar Interpenetrating Polymer Networks of Polystyrene, 583
Simha, R. and Jain, R. K.: Statistical Thermodynamics of Polymer Crystal and Melt, 1471
Simon, P. and Argay, Gy.: Revised Atomic Coordinates of Crystalline Nylon-6, 935
Smit, J. A. M.: See Hoogervorst, C. J. P.
——: See Soeteman, A. A.
Smith, C. A.: See O'Donnell, J. H.
Snyder, R. G., Krause, S. J., and Scherer, J. R.: Determination of the Distribution of Straight-Chain Segment Lengths in Crystalline Polyethylene from the Raman LAM-1 Band, 1593
Soeteman, A. A., Roels, J. P. M., van Dijk, J. A. P. P., and Smit, J. A. M.: Separation of Dextrans by Gel Permeation Chromatography, 2147
Soutar, I.: See Reid, R. F.
Sperling, L. H.: See Siegfried, D. L.
Staverman, A. J.: See Hoogervorst, C. J. P.
Steger, T. R. and Nielsen, L. E.: Microvoid Formation during Deformation of High-Impact Polystyrene, 613
Stein, R. S.: See Hashiyama, M.
——: See Maxfield, J.
Stepaniak, R. F.: See Garton, A.
Steven, J. H.: See Folland, R.
Stivala, S. S.: See Garg, S. K.
Strobl, G. R. and Hagedorn, W.: Raman Spectroscopic Method for Determining the Crystallinity of Polyethylene, 1181
Stuut, H. A.: See Northolt, M. G.
Sugimura, T.: See Ikada, E.
Sweet, G. E. and Bell, J. P.: Selective Chemical Etching of Poly(ethylene Terephthalate) Using Primary Amines, 1935
—— and ——: Chemical Degradative Stress Cracking of Poly(ethylene Terephthalate) Fibers, 2057
Shimada, J. and Yamakawa, H.: First-Order Perturbation Calculations of Intrinsic Viscosities of Flexible Linear and Ring Polymers with Excluded Volume: Comments on the Papers of Fuj˙a et al., 1927
Silberberg, A.: See Priel, Z.
Spěváček, J.: Association of Stereoregular Poly(methyl Methacrylates) in Dilute Solution. Proton NMR Study, 523
Stein, R. S.: See Russell, T. P.
Stern, S. A. and De Meringo, A. H.: Solubility of Carbon Dioxide in Cellulose Acetate at Elevated Pressures, 735
Stupp, S. I. and Carr, S. H.: Spectroscopic Analysis of Electrically Polarized Polyacrylonitrile, 13
Sugai, S.: See Ohno, N.
Stoeckel, T. M., Blasius, J., and Crist, B.: Chain Rupture and Tensile Deformation of Polymers, 485

Sumita, O., Fukuda, A., and Kuze, E.: An ESR Study of Polymer-Cu(II) Complexes in Poly(vinyl Alcohol), Polyacrylamide, and Poly(vinyl Pyrrolidone) Films, 1801
Sussner, H. and Dransfeld, K.: Importance of the Metal-Polymer Interface for the Piezoelectricity of Polyvinylidene Fluoride, 529
Swanson, S. R.: See Sayre, J. A.

Tadokoro, H.: See Kusanagi, H.
——: See Takahashi, Y.
Takahashi, K., Ikeda, M., Harakawa, K., Tanaka, K., and Sakai, T.: Analysis of the Effect of Interfacial Slippage on the Elastic Moduli of a Particle-Filled Polymer, 415
—— and Okazaki, H.: Epitaxial Crystallization of Polyoxymethylene during Cationic Polymerization of Trioxane, 2049
Takahashi, Y., Kurumizawa, T., Kusanagi, H., and Tadokoro, H.: Molecular Conformation and Crystal Structure of the β Form of Poly(ethylene Oxybenzoate), 1989
—— and Tadokoro, H.: Electron Density Calculation for Polyoxymethylene in Cylindrical Coordinates by a New Fourier Method, 1219
Takai, Y., Mori, K., Mizutani, T., and Ieda, M.: Thermoluminescence from Photoexcited Polyethylene Terephthalate, 1861
Takase, M.: See Kusanagi, H.
Takemura, T.: See Matsushige, K.
Tanaka, K.: See Ito, M.
——: See Takahashi, K.
Tanaka, T. and Shibayama, K.: Low-Temperature Relaxation in Polypyromellitimide, 335
Thomas, J. M.: See Parry, D. E.
Thompson, E. V.: See Parent, R. R.
Tirrell, M. and Malone, M. F.: Erratum: Stress-Induced Diffusion of Macromolecules, 565
Trainor, A.: See Gilmour, I.
Treloar, L. R. G.: See Haward, R. N.
Trepman, E.: See Eisenberg, A.
Tsuruta, A.: See Ito, M.
Tsuzuku, S.: See Iijima, T.

Ueda, Y.: See Ashida, M.
Uemura, T.: See Iijima, T.
Ueno, K.: See Nakanishi, H.
Uhlmann, D. R.: See Meyer, M.
——: See Renninger, A. L.
Ulbert, K.: See Pilař, J.

Valanis, K. C. and Yilmazer, U.: An Endochronic Prediction of the Variability in Fracture Times of Polymers, 555
Vanderschueren, J. and Linkens, A.: Stability of Heterocharges in Poly(methyl Methylacrylate) Thermoelectrets. II. Effect of γ-Irradiation on Thermally Stimulated Current Spectra, 223
van der Touw, F.: See Paoletti, S.
van Dijk, J. A. P. P.: See Soeteman, A. A.
Vander Sande, J.: See Meyer, M.
Vittoria, V.: See Araimo, L.
Vogl, O.: See Marchal, E.

Wada, Y.: See Yano, O.
Walker, S. M.: See Block, H.
Wang, J.-S., Knox, J. R., and Porter, R. S.: Steady-State and Dynamic Rheology of Poly(1-Olefin) Melts, 1709
Ward, I. M.: See Capaccio, G.
——: See Coates, P. D.
——: See Gibson, A. G.
——: See Richardson, I. D.
Warner, S. B.: Ultrahigh Draw Ratios in Polyethylene: Molecular Weight Effects, 2139
Watanabe, T.: See Ashida, M.
——: See Ikada, E.
Wegner, G.: See Meyer, W.
Weiss, R. A., Lenz, R. W., and MacKnight, W. J.: Properties of Polyethylene Modified with Phosphonate Side Groups. II. Dynamic Mechanical Behavior, 1101
Wenig, W.: The Microstructure of Poly(vinyl Chloride) as Revealed by X-Ray and Light Scattering, 1635
White, J. R.: Bending Contribution to Line-Broadening in Polymer Diffraction, 387
——: Collapse of Pyramidal Polyethylene Crystals, 395
——: See Evans, J. T.
Wichacheewa, P. and Woodward, A. E.: Kinetics of Epoxidation of Poly(*trans*-1,4-Butadiene) Crystals in Suspension, 1849
Wiegel, F. W.: See Mijnlieff, P. F.
Wilding, M. A.: See Capaccio, G.
Wiles, D. M.: See Garton, A.
Wilkes, G. L.: See Makarewicz, P. J.
Winzor, D. J.: See O'Donnell, J. H.
Wittmann, J. C. and Manley, R. St. John, Epitaxial Crystallization of Polyesters on Aromatic Hydrocarbon Substrates, 1891
——: See Rickert, S. E.
Woodward, A. E.: See Wichacheewa, P.
Wostenholm, G. H.: See Harwood, C.
Wright, R. D.: See Ghiggino, K. P.
Wu, W. L.: A Thermodynamic Approach to the Stress-Induced Crystallization in Crosslinked Rubbers, 1671
Wunderlich, B.: See Mehta, A.

Yagihara, S.: See Mashimo, S.
Yamaguchi, K.: See Arai, H.

Yamakawa, H.: See Shimada, J.
Yano, O., Kamoshida, T., Sekiyama, S., and Wada, Y.: Dielectric Loss of High-Density Polyethylene below 4.2°K, 679
Yates, B.: See Harwood, C.
Yee, K. C. and Chance, R. R.: Synthesis and Properties of a New Polydiacetylene: Poly[1,6-di(*N*-Carbazolyl)-2,4-Hexadiyne], 431
Yen, L. Y. and Eichinger, B. E.: Vapor Sorption Isotherms for Benzene and *n*-Heptane with Poly(styrene-co-Butadiene), 117
—— and ——: Volume Dependence of the Elastic Equation of State, 121
Yilmazer, U.: See Valanis, K. C.
Yokoyama, M.: See Ikeno, S.
Yoon, D. Y.: See Gipstein, E.
Yoon, H. N. and Eisenberg, A.: Methyl Group Tunneling and Viscoelastic Relaxation in Poly(α-Methyl Styrene), 2079

Zoller, P.: Specific Volume of Polusulfone as a Function of Temperature and Pressure, 1261
——: Analysis of the Equations of State of Polyolefin Melts in Terms of the Simha–Somcynsky Hole Theory, 1491
Zlatkevich, L. and Shepelev, M.: Study of Latex Film Structure by Radiothermoluminescence, 427
Zupančič, I., Lahajnar, G., Blinc, R., Reneker, D. H., and Peterlin, A.: NMR Study of Diffusion of Butane in Linear Polyethylene, 1399

Subject Index to Volume 16

Adhesion, effect on elastic moduli of filled polymers, 415
——, initiation and propagation of peeling, 407
Adhesives, morphology and rheology of peel of, 775
Adsorption: see sorption
Aggregation of poly(γ-benzyl-L-glutamate) in solution, 1897
Anisotropy, dielectric, of flexible polymers in flow, 989
Anisotropy, mechanical, in polyethylene, 667
Annealing, of branched polyethylene, 1325
——, of nylon 6, 1329

Birefringence, optical, of circular fibers, 1665
——, ——, of filled rubbers, 29
——, ——, of poly(vinyl chloride), 2115
Branched polymers, sedimentation coefficients of, 1705
——, x-ray scattering from solutions of, 1419

Cellulose II single crystals, 833
Cellulose acetate, solubility of CO_2 in, 735
Chain conformation: and craze fracture, 1169
——, of poly(ethylene oxybenzoate), 1989
——, of poly(isoprene-g-styrene) in solution, 851
Chain dimensions, from Raman spectra in polyethylene, 1593
——, in solutions of incompatible polymers, 1883
——, of branched polymers from x-ray scattering, 1419
——, of polyelectrolytes, 627
——, of poly(ethylene oxide) in aqueous salt, 501
Chain end locations, in polyethylene, 375
——, in poly(ethylene terephthalate), 159
Chain folding, and cross-sectional area of chain, 371
——, in nylon 6, 6, 201, 215
——, in poly (*trans*-1,4-butadiene), 1849
——, in polyethylene polymerized by x-rays, 841
——, in stressed rubber networks, 1671
Chromatography: see gel permeation chromatography
Conductivity, of elastomeric TCNQ complexes, 717
——, of poly(sulfur nitride), effect of substitution on, 1023
Conformational changes, of maleic acid—styrene copolymer in aqueous salt, 513
——, of poly(β-benzyl-L-aspartate) with solvents, 367
Copolymers, butadiene, styrene, 4-vinylpyridine terpolymer, crosslinked with iron, 569
——, ethylene–butene-1, gelation and precipitation from solution, 1583
——, ethylene–methacrylic acid and sodium salt, melt rheology, 143
——, (ethylene–terephthalate)–p-oxybenzoate, nematic phase, 883
——, isoprene–styrene graft, chain conformation in dilute solution, 851
——, maleic acid–ethylene, dielectric properties, 641
——, maleic acid–styrene, conformational transitions in aqueous solution, 513
——, methyl methacrylate–styrene and –chlorostyrene, dielectric study, 1761
——, styrene–acrylonitrile, effects of polar groups on crazing, 703
——, styrene–butadiene, vapor sorption isotherms in, 117
——, styrene–butadiene–styrene block, melt rheology, 545
——, styrene–methacrylic acid, glass transition and ion-aggregation in, 1381
——, styrene–methacrylic acid solutions, diffusion of cyclodextrins in, 793
——, tetramethyl-p-silphenylene–dimethylsiloxane block, crystallization of, 1059
——, vinylidene chloride copolymers, radicals in, 1877
——, vinylnaphthalene–methyl methacrylate, photophysical processes in, 231
——, vinylpyrrolidone–*t*-butylphenyl methacrylate, dilute solution properties, 977
Crack propagation, in amine-degraded poly(ethylene terephthalate), 2057
——, in high-impact polystyrene, 613
——, in polycarbonate, 91
——, in polyethylene, 803
Craze deformation as source of creep strain, 1085
Craze fracture, molecular aspects of, 1169
Crazing of glassy polymers, 349, 703, 1195
Crosslinked polymers, crystallization and melting of aqueous gelatin, 1817
——, interpenetrating networks of polystyrene, 583
——, iron complexes of butadiene—styrene—4-vinylpyridine terpolymer, 569
——, viscometric technique for study of gelatin in, 1519
Crystal-density determination for polymers, 939
Crystal structure, of nylon 6, 935

——, of p-phenylenediacrylic acid diethyl ester, 767
——, of poly(ethylene oxybenzoate), 1989
——, of poly(pentamethylene terephthalate), 2189
——, of poly(pentene-1), 971
——, of poly(*bis*-phenyl glutarate diacetylene), 1009
Crystalline and melt states, statistical thermodynamics of polymers in, 1471
Crystallinity, in poly(vinyl chloride), 1507, 1635
——, NMR study of polyethylene, 265
——, Raman spectroscopic determination of, 1181
Crystallites, in poly(chlorotrifluoroethylene), 271
——, orientation in poly(vinyl chloride), 2115
Crystallization, equation for spherulitic growth, 81
——, in drawing of polyethylene, 2139
——, in stretching of poly(ethylene terephthalate), 1139
——, morphology and kinetics of TMPS–DMS block copolymers, 1059
——, morphology in poly(pentamethylene terephthalate), 1409
——, nematic phases in semifluexible chain polymers, 883
——, of aqueous gelatin, 1817
——, of liquid-treated poly(ethylene terephthalate), 1559, 1935
——, of poly(ethylene terephthalate) on metallic nuclei, 1155
——, of poly(vinylidene fluoride) under high pressure, 921
——, thermodynamics of stress-induced crystallization in rubbers, 1671
Crystallization, epitaxial, of polyesters, 895, 1891
——, ——, of polyethylene, 171
——, ——, of polyoxymethylene, 2049
——, ——, of polypropylene, 179
Crystals of cellulose II, electron microscopy of, 833

Deformation, bending contribution to diffraction line-broadening, 387
——, calorimetric study of poly(ethylene terephthalate) during stretching, 1139
——, chain rupture in tensile deformation, 485
——, collapse of pyromidal polyethylene crystals, 395
——, cooperative model for response to applied stress, 1071
——, creep curves in terms of craze parameters, 1085
——, delayed yielding in polycarbonate, 1459
——, drawing of polypropylene, theoretical treatment of, 1297
——, effect of ozone on creep of vulcanizates, 813
——, in polypropylene filaments, 599
——, infrared study of deformed polyethylene crystals, 1253
——, microvoids in stressed polystyrene, 613
——, strain dislocations in elastic solids, 379
——, temperature dependence of Poisson's ratios in polyethylene, 667
——, x-ray study of drawn nylon 6, 1329
Degradation, dielectric spectra of oxidized polyethylene, 1773
——, of γ-ray–polymerized polyethylene, 841
——, of nylon 66, 201, 215
——, of poly(ethylene terephthalate) by amine etching, 1935, 2057
Density, of aqueous poly(ethylene glycols), 1123
——, of crystalline polymers, 939
Dielectric loss of polyethylene at low temperature, 679
Dielectric properties, anisotropy of flexible polymers in flow, 989
———, of maleic acid–ethylene copolymer, 641
——, of methyl methacrylate copolymers, 1761
——, of oligomers of vinyl acetate and methyl methacrylate, 907
——, of phosphonated polypentenamers, 59
——, of thermally oxidized polyethylene, 1773
Dielectric relaxation, of poly(diethylene glycol terephthalate), 1
——, of polyethylene, 1227, 1739
——, of polypyromellitimide, 335
——, of poly(vinyl acetate), 1447
Differential scanning calorimetry (DSC), of aqueous gelatin, 1817
——, of hydrogenated poly(2-methyl styrene), 1389
——, of phosphonylated polyethylene, 1101
——, of phosphonylated polypentenamers, 59
——, of poly(ethylene terephthalate), 289
——, of polymeric nematic phase, 883
——, of poly(vinyl acetate), 1447
——, of solid-state diacetylene polymerization, 1355
Differential thermal analysis (DTA), of polysulfone, 1261
——, of poly(vinylidene fluoride) at high pressure, 921
Diffusion, of butane in polyethylene, 1399
——, of liquid and vapor in poly(ethylene terephthalate), 1529
——, of polystyrenes through membranes, 297
——, simultaneous nonlinear diffusion of solvent and penetrant in polymer, 1651
Diffusion coefficient, of CO_2 in poly(ethylene terephthalate), 2171

——, of cyclodextrins in aqueous polymer solutions, 793
——, of poly(γ-benzyl-L-glutamate) in chloroform/octane, 1897
Dynamic mechanical properties, Massa correction to dynamic data, 753
——, of phosphonylated polyethylene, 1101
——, of phosphonylated polypentenamers, 59

Elasticity, effect of shape of filler particles on, 959
Electron microscopy, of adhesive peel surfaces, 775
——, of amine-degraded poly(ethylene terephthalate), 1935, 2057
——, of cellulose II single crystals, 833
——, of clusters in iron-complexed elastomer, 569
——, of collapsed pyramidal polyethylene crystals, 395
——, of crystallization of poly(ethylene terephthalate) on metallic nuclei, 1155
——, of epitaxially crystallized polymers, 171, 179, 895, 2049
——, of fracture of liquid-treated poly(ethylene terephthalate), 1545
——, of glassy polymers, 2005
——, of high-impact polystyrene, 1321
——, of interpenetrating polystyrene networks, 583
——, of methanol crazes in poly(methyl methacrylate), 349
——, of photopolymerized diolefins, 1365
——, of poly(γ-benzyl-L-glutamate) adsorbed on alkali halide, 1897
——, of polyesters, 895
——, of polyethylene, 171
——, of poly(ethylene terephthalate) during sorption of liquid and vapor, 1529
——, of polyoxymethylene, 2049
——, of polypropylene, 179
——, of polypropylene filaments, 599
——, of polystyrene/poly(methyl methacrylate) dispersions, 1829
——, of poly(vinylidene fluoride), 921
Electron paramagnetic resonance, see ESR
Electron spin resonance (ESR), of deformed polymers, 485
——, of irradiated polyethylene, 945
——, of mechanoradicals of poly(methyl methacrylate), 1973
——, of polymer-Cu(II) complexes in films, 1801
Epoxy resin, thermoelasticity of, 1277
Ethylene—butene-1 copolymers, gelation and precipitation from solutions of, 1583
Excluded volume effects, 627, 977, 999, 1927
Extrusion, solid state, of polyethylene, 1721, 2015
——, ——, of polyoxymethylene, 2031

Filled polymers, birefringence of rubbers, 29
——, effect of particle shape on elastic moduli of, 959
——, effect of particle shape on thermal expansion of, 967
——, electron microscopy of rubber-filled polystyrene, 1321
——, mechanical properties of, 415
Flory-Huggins interaction parameter, from vapor sorption isotherms of styrene–butadiene copolymers, 117
——, in incompatible polymer solutions, 1883
——, in swelling of semicrystalline polymers, 1887
——, of poly(ethylene oxide) in aqueous salt, 501
——, of polystyrene in mixed solvents, 105
Fluorescence polarization and molecular dynamics, 443
Fluorescence spectroscopy of polystyrene and poly(1-Vinylnaphthalene), 1499
Fracture surface morphology in polystyrene/poly(methyl methacrylate) dispersions, 1829
Fracture time, theory of variability of, 555
Friction coefficient, in solution and in pores of membranes, 297
——, of nondraining flexible rings, 999
——, of polymer molecules in solution from porous sphere model, 245

Gel permeation chromatography (GPC), high speed aqueous GPC, 1789
——, of dextrans, 2147
——, of ozone-degraded polyethylene, 841
Gelatin, gelation and melting of, 1817
Glass transition, in polyethylene by C-13 NMR, 1135
——, in polymer-diluent mixtures, 653
——, of hydrogenated poly(2-methyl styrene), 1389
——, of styrene ionomers, 1381
Glassy polymers, electron microscopy of, 2005
——, permeation of CO_2 in poly(ethylene terephthalate), 2171
——, sorption of CO_2 in poly(ethylene terephthalate), 1947
——, x-ray scattering from polystyrene, 2237

Hydrogen bonding and ionic aggregation in polyelectrolyte melts, 143

Infrared attenuated total reflection measurements in polarized polyacrylonitriles, 13
Infrared spectra, of brominated polyethylene, 375
——, of epitaxially crystallized polyesters, 895
——, of epoxidized and brominated polybuta-

dienes, 1849
——, of poly(β-benzyl-L-aspartate) exposed to solvents, 367
——, of poly(γ-benzyl-L-glutamate) adsorbed on KCl, 1897
——, of polyethylene, 1253
——, of polypyromellitimide, 335
——, of poly(vinylidene fluoride), 921
——, of pyrolyzed polyacrylonitrile, 821
——, study of stereoregularity in polystyrene, 1869
Intrinsic viscosity, as separating parameter in GPC of dextrans, 2147
——, of amine-degraded poly(ethylene terephthalate), 1935
——, of aqueous maleic acid—ethylene copolymer, 641
——, of deformed and undeformed polymers, 485
——, of flexible linear polymers, 1927
——, of nondraining flexible ring polymers, 999, 1927
——, of poly(ethylene oxide) in aqueous salt, 501
——, of polystyrene in mixed solvents, 105
——, of poly(styrene sulfonate) in aqueous salt and glycerol, 1031
——, of vinylpyrrolidone–*t*-butylphenyl methacrylate, 977
——, porous sphere model for, 245

Kinetics, of conformation transition in aqueous maleic acid–styrene copolymer, 513
——, of craze growth in glassy polymers, 1195
——, of crystallization in liquid-treated poly(ethylene terephthalate), 1559
——, of crystallization of TMPS-DMS block copolymers, 1059
——, of epoxidation of polybutadiene, 1849
——, of gelation and melting of aqueous gelatin, 1817
——, of radical decay in polyethylene, 467
——, of solid-state polymerization of diacetylene, 859, 1355
——, of thermoluminescence, 1703

Light scattering, calibration of low-angle apparatus for study of films, 1879
——, from circular birefringent fibers, 1665
——, in poly(vinyl chloride), 1635
Light scattering in solution, of poly(γ-benzyl-L-glutamate), 1897
——, of poly(isoprene-*g*-styrene), 851
Liquid crystals, thermodynamics of polymeric nematic phases, 883

Maleic acid–ethylene copolymer, dielectric properties of solutions of, 641
Maleic acid–styrene copolymer, conformational transitions in aqueous salt solutions of, 513
Mechanical properties, cooperative model for mechanical deformation, 1071
——, draw ratios of polyethylene related to molecular weight, 2139
——, effect of filler particle shape on, 959
——, heat effects during stretching of poly(ethylene terephthalate), 1139
——, of hydrostatically extruded polyethylene, and polyoxymethylene, 2015, 2031
——, of methanol crazes in poly(methyl metacrylate), 349
——, of poly(ethylene terephthalate) after liquid-induced crystallization, 1545
——, of solid-state extruded polyethylene, 1729
——, peeling of rubbery materials, 407
——, temperature dependence of anisotropy in polyethylene, 667
——, theory of drawing of crystalline polymers, 1297
Melting behavior, of aqueous gelatin, 1817
——, of poly(ethylene terephthalate), 289
——, of poly(vinylidene fluoride), 921
——, of solid-state extruded polyethylene, 1721
——, of TMPS-DMS block copolymers, 1059
Melts, equations of state for, 1491
Methyl methacrylate—styrene and—chlorostyrene copolymers, side-group rotation in, 1761
Methyl methacrylate—vinylnaphthalene copolymer, photophysical processes in, 231
Molecular motion, and fluorescence polarization in polymers, 443
——, end-group effects in oligomeric chains, 907
——, in methyl methacrylate copolymers, 1761
——, in polydimethylsiloxane, 341, 1041
——, in polyethylene, 1227, 1611
——, in polyisobutylene, 1685
——, in polystyrenes, 949, 2157
——, model for polymer dynamics in dilute solution, 2215
——, vibrations of perturbed rods), 2105
Molecular structure, electron density of polyoxymethylene, 1219
——, infrared analysis of stereoregularity of polystyrene, 1869
Molecular weight distribution in ozone-degraded polyethylene, 841
Molecular weights, effect on high draw ratio in polyethylene, 2139
——, effect on hydrostatic extrusion of polyethylene, 2015
——, of vinylpyrrolidone—*t*-butylphenyl methacrylate copolymers, 977
Morphology, in swelling of poly(ethylene

terephthalate), 1529
——, of interpenetrating polystyrene networks, 583
——, of peel of adhesives, 775
——, of poly(chlorotrifluoroethylene), 271
——, of poly(ethylene terephthalate) etched by amines, 1935
——, of polystyrene/poly(methyl methacrylate) dispersions, 1829
——, of solid-state extrudates of polyethylene, 1721
——, of solid-state photopolymerized diolefins, 1365
——, of TMPS-DMS block copolymers, 1059

Networks, crystallinity in poly(vinyl chloride) gels, 1507
——, crystallization and melting of gelatin, 1817
——, formation in polydimethylsiloxane, 1041
——, gelation of copolymers, 1583
——, of interpenetrating polystyrene chains, 583
——, rubber elasticity under low stress in polydimethylsiloxane, 1115
——, solvent vapor sorption in, 117, 121
——, thermodynamics of stress-induced crystallization in, 1671
——, viscometric study of gelation in polyesters, 1519
Neutron scattering in ion clusters in crosslinking elastomer, 569
Nuclear magnetic resonance (NMR), of associated structures in solutions of poly(methyl methacrylate), 523
——, of diffusion of butane in polyethylene, 1399
——, of ethylene—butene-1 copolymers, 1583
——, of hydrogenated poly(α-methyl styrene), 1389
——, of polydimethylsiloxane, 341, 1041
——, of polyethylene, 265, 1135, 1611
——, of polyisobutylene, 1685
——, of polypyromellitimide, 335
Nylon 6, crystal structure of, 935
——, tensile deformation in, 485
——, x-ray scattering of, 1329
Nylon 66, birefringence of fibers of, 1665
——, selective degradation study of, 201, 215
——, tensile deformation in, 485

Optical microscopy, of birefringent nylon 6,6 fiber, 1665
——, of epitaxial crystallization in polyesters, 895
——, of poly(vinylidene fluoride), 921
——, of TMPS-DMS block copolymers, 1059
——, of yield zone in polycarbonate, 1459
Osmotic pressure: diffusion of polystyrene through membranes, 297
——, of vinylpyrrolidone–t-butylphenyl methacrylate copolymer, 977

Permeation of CO_2 in poly(ethylene terephthalate), 2171
Phase equilibria in polymeric nematic states, 883
Phase relationships in polystyrene/poly(methyl methacrylate) dispersions, 1829
Phase separation in aqueous salt solutions of poly(ethylene oxide), 501
Phenol-formaldehyde resin, thermal expansion and heat capacity of, 759
Photoconductivity of polydiacetylene, 431
Photophysical processes in copolymers, 231
Photopolymerization, in crystalline state, 767, 1365
——, of a diacetylene, 859, 1355
Piezoelectric effect and metal-polymer interface, 529
Polyacrylamide, Cu(II) complexes in films of, 1801
——, high-speed GPC of, 1789
Polyacrylonitrile, infrared studies following pyrolysis of, 821
——, spectroscopic analysis of electrical polarization in, 13
Poly(β-benzyl-L-aspartate), solvent effects on conformation in, 367
Poly(γ-benzyl-L-glutamine), adsorption on alkali halides, 1897
Poly(*trans*-1,4-butadiene), kinetics of epoxidation of, 1849
Polycarbonate, crack propagation in, 91
——, delayed yielding in, 1459
——, electron microscopy of, 2005
——, swelling and crazing of dicyano bisphenol polycarbonate, 703
——, thermoelasticity of, 1277, 1291
Poly(chlorotrifluoroethylene), creep behavior under craze deformation, 1085
——, crystallite structure in, 271
Polydiacetylene, solid-state polymerization of, 859, 1355
——, synthesis and properties of, 431
Poly(diethylene-glycol terephthalate), dielectric relaxations in, 1
Polydimethylsiloxane, elastic component in solvent swelling of, 121
——, elasticity under low stress, 1115
——, NMR study of, 341, 1041
Polydiolefins, solid-state photopolymerization of, 1365
Polyelectrolytes, diffusion constants and complex formation of cyclodextrins in solutions of, 793
——, maleic acid—styrene copolymer, conformational transition of, 513

——, melt rheology of, 143
Polyesters, dielectric relaxations, in, 1
——, epitaxial crystallization of, 895
——, viscoelastic properties of, 1435
——, viscometric technique for study of gelation in, 1519
Polyethylene, branched, annealing of, 1325
——, chain ends in crystals of, 375
——, dielectric loss at low temperature in, 679
——, diffusion of butane in, 1399
——, draw ratio and molecular weight of, 2139
——, dynamic mechanical behavior of phosphonylated derivative of, 1101
——, elastic deformation in crystals of, 379–395
——, environmental stress cracking of, 803
——, epitaxy in crystals of, 171
——, equation of state and dielectric relaxation in, 1739
——, glass temperature from NMR in, 1135
——, infrared spectrum of, 1253
——, mechanical behavior after irradiation of, 2083
——, molecular motions in, 1227
——, NMR study of, 265, 1611
——, ozone degradation of, 841
——, radical decay kinetics in, 467
——, Raman scattering in, 37, 189, 1181, 1593
——, solid-state extrusion of, 2015
——, solubility of gases in melts of, 319
——, swelling by organic fluids, 1887
——, temperature dependence of Poisson's ratios in, 667
——, tensile deformation in, 485
——, tensile properties of solid-state extrudates of, 1729
——, thermal properties and morphology of solid-state extrudates of, 1721
——, thermally oxidized, dielectric spectra of, 1773
——, thermally stimulated discharge current in, 1965
Poly(ethylene glycols), high-speed GPC of, 1789
——, volumetric properties of, 1123
Poly(ethylene oxide), thermodynamics of aqueous salt solutions of, 501
Poly(ethylene oxybenzoate), crystal structure of, 1989
Poly(ethylene terephthalate), calorimetry during stretching of, 1139
——, crystallization in metallic nuclei, 1155
——, diffusion of liquids and vapors in, 1529
——, electron microscopy of, 2005
——, location of chain-ends in, 159
——, mechanical properties following liquid-induced crystallization, 1545
——, melting behavior of, 289
——, permeation of CH_2 in, 2171
——, primary amine degradation of, 1935, 2057
——, sorption of CO_2 in, 1947
——, thermoluminescence and thermally stimulated discharge in, 1861
——, x-ray scattering and crystallization kinetics following liquid treatment of, 1559
Polyisobutylene, NMR of, 1685
Polyisoprene, crystalline elastic modulus of, 1983
Poly(isoprene-g-styrene), chain conformation in dilute solutions of, 851
Poly(isopropenyl cyclohexane), thermal properties of, 1389
Poly(methacrylic acid), diffusion of cyclodextrins in solutions of, 793
Poly(methyl methacrylate), association in dilute solutions, 523
——, creep behavior under craze deformation, 1085
——, dielectric properties in solution under flow, 989
——, dielectric properties of oligomers of, 907
——, ESR study of mechanoradicals in, 1973
——, methanol crazes in, 349, 1195
——, morphology of dispersions of polystyrene in, 1829
——, thermally stimulated current spectra in, 223
——, thermoelasticity of, 1277, 1291
——, viscoelasticity and glass transition of concentrated solutions of, 653
Poly(4-methyl-1-pentene), crystal structure of, 131
Poly(2-methyl styrene), rotational tunneling in, 2079
Polyolefin melts, equations of state of, 1491
——, rheology of, 1709
Polyoxymethylene, electron density of, 1219
——, epitaxial crystallization of, 2049
——, hydrostatic extrusion of, 2031
Poly(pentamethylene terephthalate), synthesis and fiber properties of, 1409, 2189
Polypentenamers, phosphonate substituted, dynamic mechanical and dielectric properties of, 59
Poly(pentene-1), x-ray study of, 971
Poly(*bis*-phenyl glutarate diacetylene), crystal structure of, 1009
Polypropylene, drawing of fibers of, 1297
——, electron microscopy of epitaxial growth in, 179
——, morphology in deformation of, 599
——, tensile deformation in, 485
——, x-ray diffraction of quenched forms of, 49
Polypyromellitimide, low temperature relaxation in, 335
Polysaccharides, cellulose II single crystals,

833
——, high-speed GPC of dextrans, 1789
——, GPC and intrinsic viscosity of, 2147
——, x-ray scattering from dextran solutions, 1419
Polystyrene, craze fracture and chain conformation in, 1169
——, dielectric properties in solution under shear, 989
——, diffusion through cellophane membrane, 297
——, electron microscopy of, 2005
——, fluorescence spectroscopy of, 1499
——, infrared analysis of stereoregularity in, 1869
——, intrinsic viscosity in mixed solvents, 105
——, kinetics of solvent crazing in, 1195
——, microvoid formation in deformation of, 613
——, morphology of dispersions of poly(methyl methacrylate) in, 1829
——, Raman scattering in, 2157
——, refractive index increment in decalin solutions of, 695
——, sorption at solution-glass interface, 1917
——, thermally stimulated discharge currents in, 949
——, thermoelasticity of, 1277, 1291
——, viscoelasticity and glass temperature of concentrated solutions of, 653
——, viscoelasticity of interpenetrating networks of, 583
——, viscosity of dilute and concentrated solutions of, 725
——, x-ray scattering from, 2237
Poly(styrene sulfonate), sodium salt: diffusion of cyclodextrins in solutions of, 793
——, viscoelastic properties in dilute solutions of, 1031
Polysulfone, specific volume of, 1261
Poly(sulfur nitride), effect of substitutional impurities in electronic properties of, 1023
Poly(tetramethyl - *p* - silphenylene—(dimethylsiloxane) block copolymers, crystallization of, 1059
Poly(vinyl acetate), dielectric properties of oligomers of, 907
——, structural relaxation in, 1447
——, viscoelasticity and glass temperature of concentrated solutions of, 653
Poly(vinyl alcohol), Cu(II) complexes in films of, 1801
——, high-speed GPC of, 1789
Poly(N-vinyl carbazole), dielectric properties in solutions under shear, 989
Poly(vinyl chloride), gelation crystallization of, 1507
——, electron microscopy of, 2005
——, microstructure of, 1635
——, Raman spectra and birefringence of, 2115
Poly(1-vinyl naphthalene), fluorescence spectroscopy of, 1499
Poly(vinyl pyrrolidone), Cu(II) complexes in films of, 1801
——, high-speed GPC of, 1789
Poly(vinylidene fluoride), melting and crystallization under high pressure, 921
——, piezoelectricity and metal-polymer interface in, 529

Quasielastic scattering from solutions of poly(γ-benzyl-L-glutamate), 1897

Radiation chemical yields, evaluation of, 1515
Radiation effect on mechanical behavior of polyethylene, 2083
Radicals, decay and oxidation in poly(methyl methacrylate), 1973
——, decay kinetics in polyethylene, 467
——, distribution in polyethylene, 945
——, formation in stretched vinylidene chloride polymer, 1877
Raman spectra, of polyethylene, 37, 189, 1181, 1593
——, of polystyrene, 2157
——, of poly(vinyl chloride), 2115
Refractive index increment of polystyrene in decalin, 695
Relaxation, in concentrated polymer solutions, 653
——, in linear aliphatic polyesters, 1435
——, in polyethylene, 1227
——, in polyisobutylene, 1685
——, in poly(α-methyl styrene), 2079
——, in polypyromellitimide, 335
Rubbery polymers, birefringence of filled rubbers, 29
——, creep of vulcanizates under ozone attack, 813
——, elastic modulus of crystalline polyisoprene, 1983
——, elasticity of polydimethylsiloxane under low stress, 1115
——, electrically conductive elastomeric TCNQ complexes, 717
——, latex film structure, 427
——, ion clustering in elastomers crosslinked with iron, 569
——, thermodynamics of stress-induced crystallization in, 1671

Second virial coefficient, 501, 627, 841, 977, 1883
Sedimentation coefficients of branched polymers, 1705
Solid-state polymerization of diacetylene, 859,

1009
Solubility, of CH_2 in cellulose acetate, 735
——, of gases in polyethylene melts, 319
Sorption, dynamics of polymer attached to surface, 457
——, of CO_2 in cellulose acetate, 735
——, of CO_2 in poly(ethylene terephthalate), 1947
——, of liquids and vapors in poly(ethylene terephthalate), 1529
——, of poly(γ-benzyl-L-glutamate) on alkali halides, 1897
——, of polystyrene on glass capillary wall, 1917
——, of solvent vapor by rubbery polymers, 117, 121
——, simultaneous nonlinear diffusion of solvent and penetrant in polymer, 1651
Spherulites, equation for growth of, 81
——, in poly(chlorotrifluoroethylene), 271
Spreading coefficient of liquid and stress cracking of polyethylene, 803
Statistical mechanics, application of Simha–Somcynsky hole theory, to polyolefins, 1491
——, ——, to polysulfone, 1261
Statistical mechanics, dynamics of polymer attached to surface, 457
——, excluded volume effect of polyelectrolyte, 627
——, excluded volume effect on intrinsic viscosity and friction coefficient, 999, 1927
——, gas sorption in polyethylene melts, 319
——, model for dynamics of polymer in dilute solution, 2214
——, molecular dynamics and fluorescence polarization, 443
——, thermal conductivity and free volume in glassy polymers, 689
——, thermodynamics of polymer crystal and melt, 1471
Stress relaxation test for linear viscoelasticity, 915
Stress–strain relations, at low stress in polydimethylsiloxane, 1115
——, of craze fibrils in poly(methyl methacrylate), 349
——, in delayed yielding of polycarbonate, 1459
——, in drawing of polypropylene, 1297
Styrene-butadiene copolymers, elastic component of swelling in, 121
——, vapor sorption isotherms in, 117
Styrene–butadiene–styrene block copolymer, melt rheology of, 545
——, variability in fracture times of, 555
Styrene–butadiene–40vinylpyridine terpolymer, iron crosslinks in, 569
Styrene–methacrylic acid copolymers, ion-aggregation and thermal expansion in, 1381
Swelling, of interpenetrating polystyrene networks, 583
——, of semicrystalline polymers by organic fluids, 1887

Thermal conductivity of glassy polymers under pressure, 689
Thermal degradation, of hydrogenated poly(α-methyl styrene), 1389
——, of polyacrylonitrile, 821
Thermal expansion, of filled polymers, effect of particle shape on, 967
——, of solid-state extruded polyethylene, 1721
Thermal polymerization of diacetylene, 859
Thermally stimulated discharge currents, in electrically polarized polyacrylonitrile, 13
——, in head-to-tail and head-to-head polystyrenes, 949
——, in polyethylene, 1965
——, in poly(ethylene terephthalate), 1861
——, in poly(methyl methacrylate), 223
Thermodynamic parameters, equation of state of polyethylene, 1739
——, equations of state for polymer crystals and melts, 1471, 1491
——, gruneisen constant from thermoelastic data, 1291
——, in solid-state polymerization of diacetylene, 1355
——, in stress-induced crystallization of rubbers, 1671
——, heat of fusion of poly(ethylene terephthalate), 289
——, partial specific and molar volumes of aqueous poly(ethylene glycols), 1123
——, pressure-volume-temperature properties of polysulfone, 1261
——, scaling laws for incompatible polymer solutions, 1883
——, thermal expansion and specific heat capacity of phenol-formaldehyde resin, 759
Thermoelasticity in glassy polymers, 1277, 1291
Thermoluminescence, mechanism of, 1703
——, of latex films, 427
——, of poly(ethylene terephthalate), 1861
Thermomechanical analysis of polydiacetylene, 431

Vibrations of perturbed rods, 2105
Vinylidene chloride copolymer, radical formation in stretching of, 1877
Vinylpyrrolidone—*t*-butylphenyl methacrylate copolymer, dilute solution properties of, 977
Viscoelastic properties, combined constant strain

and stress relaxation test, 915
——, creep of vulcanizates, 813
——, elastic modulus of crystalline polyisoprene, 1983
——, methyl group tunneling and relaxation, 2079
——, of interpenetrating networks of polystyrene, 583
——, of linear aliphatic polyesters, 1435
——, of polymer-diluent mixtures, 653
——, tensile creep of polyethylene under environmental stress, 803
Viscosity, of ethylene-methacrylic acid copolymer and its sodium salt, 143
——, of polyolefins, 1709
——, of styrene-butadiene-styrene block copolymer, 545
Viscosity of solutions, of deformed polymers, 485
——, of dilute and concentrated polystyrene, 725
——, of dilute sodium poly(styrene sulfonate), 1031
——, viscometric study of sorption of polystyrene on capillary wall, 1917

X-ray diffraction, bending contribution to line broadening in, 387
——, electron density of polyoxymethylene, 1219
——, of amine-degraded poly(ethylene terephthalate), 1935
——, of branched polyethylene, 1325
——, of branched polymers in solution, 1419
——, of glassy polymers, 2237
——, of ion clusters in crosslinked elastomer, 569
——, of nylon 6, 1329
——, of ozone-degraded polyethylene, 841
——, of *p*-phenylenediacrylic acid diethyl ester, 767
——, of phenylmercurated poly(ethylene terephthalate), 159
——, of photopolymerized diolefins, 1365
——, of poly(chlorotrifluoroethylene), 271
——, of poly(ethylene oxybenzoate), 1989
——, of poly(ethylene terephthalate) after liquid-induced crystallization, 1559
——, of poly(4-methyl-1-pentene), 131
——, of polyoxymethylene, 2049
——, of poly(pentamethylene terephthalate), 1409, 2189
——, of poly(pentene-1), 971
——, of polypropylene, 49, 599
——, of polystyrene, 2237
——, of poly(vinyl chloride), 1507, 1635
——, of stressed high-impact polystyrene, 613
——, of stretched polyisoprene, 1983

Journal of Polymer Science

Polymer Physics Edition

Volume 16, 1978

Board of Editors: **H. MARK • C. G. OVERBERGER**

Advisory Editors: **J. J. HERMANS • H. W. MELVILLE • G. SMETS**

Associate Editors: **E. F. CASASSA • H. MARKOVITZ**

Advisory Board:

G. ALLEN, *Manchester*
W. O. BAKER, *Murray Hill, N.J.*
H. BENOIT, *Strasbourg*
F. A. BOVEY, *Murray Hill, N.J.*
P. G. DE GENNES, *Paris*
A. EISENBERG, *Montreal*
J. D. FERRY, *Madison, Wisc.*
E. W. FISCHER, *Mainz*
P. J. FLORY, *Stanford, Calif.*
H. L. FRISCH, *Albany, N.Y.*
H. FUJITA, *Toyonaka*
G. GEE, *Manchester*
A. N. GENT, *Akron, Ohio*
W. E. GIBBS, *Leominster, Mass.*
S. GRATCH, *Dearborn, Mich.*
C. A. J. HOEVE, *College Station, Tex.*
J. D. HOFFMAN, *Washington, D.C.*
H. D. KEITH, *Murray Hill, N.J.*
A. KELLER, *Bristol*
A. J. KOVACS, *Strasbourg*
G. KRAUS, *Bartlesville, Okla.*
W. R. KRIGBAUM, *Durham, N.C.*
S. KRIMM, *Ann Arbor, Mich.*
M. KURATA, *Kyoto*
R. F. LANDEL, *Pasadena, Calif.*
P. H. LINDENMEYER, *Seattle, Wash.*
L. MANDELKERN, *Tallahassee, Florida*
J. E. MARK, *Cincinnati, Ohio*
B. MAXWELL, *Princeton, N.J.*
L. NIELSEN, *Redmond, Ore.*
A. PETERLIN, *Washington, D.C.*
R. S. PORTER, *Amherst, Mass.*
G. V. SCHULZ, *Mainz*
A. R. SHULTZ, *Schenectady, N.Y.*
A. SILBERBERG, *Rehovot*
R. SIMHA, *Cleveland, Ohio*
W. P. SLICHTER, *Murray Hill, N.J.*
T. L. SMITH, *San Jose, Calif.*
R. S. STEIN, *Amherst, Mass.*
W. H. STOCKMAYER, *Hanover, N.H.*
M. TAKAYANAGI, *Fukuoka*
P. WEISS, *Warren, Mich.*
B. WUNDERLICH, *Troy, N.Y.*

an Interscience® Publication
published by JOHN WILEY & SONS

Copyright © 1978 by John Wiley & Sons, Inc.

The *Journal of Polymer Science* is published as follows: *Polymer Chemistry Edition*, monthly; *Polymer Physics Edition*, monthly; *Polymer Letters Edition*, monthly; *Polymer Symposia*, irregularly.

Published monthly (one volume per year) by John Wiley & Sons, Inc. Copyright © 1978 by John Wiley & Sons, Inc., 605 Third Avenue, New York, New York 10016. All rights reserved. Reproduction or translation of any part of this work beyond that permitted by Sections 107 or 108 of the United States Copyright Law without permission of the copyright owner is unlawful. Second-class postage paid at New York, New York, and at additional mailing offices.

The code and the copyright notice appearing at the bottom of the first page of an article in this journal indicate the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients, on the condition that the copier pay for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. The per-copy fee for each article appears after the dollar sign and is to be paid through the Copyright Clearance Center, Inc. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Such permission requests and other permission inquiries should be addressed to the publisher.

Subscription price (1979): $540.00 per volume. Postage and handling outside U.S.A.: $41.00. Please allow 4 weeks for change of address. Back volumes, microfilm, and microfiche are available for previous years. Request price list from publisher.

Claims for undelivered copies must be made no later than three months following month of publication. Missing copies will be supplied when losses have been sustained in transit and where reserve stock will permit.

Journal of Polymer Science: Polymer Physics Edition

Contents, Volume 16, 1978

Issue 1, January 1978

E. RIANDE: Dielectric Properties of Aromatic Polyesters: Relaxation Behavior of Poly(diethylene Glycol Terephthalate) 1

S. I. STUPP and S. H. CARR: Spectroscopic Analysis of Electrically Polarized Polyacrylonitrile 13

M. HASHIYAMA and R. S. STEIN: Birefringence of Filled Rubbers 29

J. MAXFIELD, R. S. STEIN, and M. C. CHEN: Polarized Raman Studies of Crystalline and Amorphous Orientation in Polyethylene 37

P. B. MCALLISTER, T. J. CARTER, and R. M. HINDE: Structure of the Quenched Form of Polypropylene 49

D. RAHRIG, C. AZUMA, and W. J. MACKNIGHT: Dynamic Mechanical and Dielectric Properties of Phosphonylated Polypentenamers and their Hydrogenated Derivatives 59

J. N. HAY and Z. J. PRZEKOP: On A Nonexponential Transformation Equation for Spherulitic Crystallization 81

R. P. KAMBOUR, A. S. HOLIK, and S. MILLER: Plane-Strain Fracture Energy Instability and Mixed Mode Crack Propagation in Polycarbonate at Room Temperature 91

P. MUNK, M. T. ABIJAOUDE, and M. E. HALBROOK: Intrinsic Viscosity of Polystyrene in Mixed Solvents 105

L. Y. YEN and B. E. EICHINGER: Vapor Sorption Isotherms for Benzene and *n*-Heptane with Poly(styrene-co-Butadiene) 117

L. Y. YEN and B. E. EICHINGER: Volume Dependence of the Elastic Equation of State .. 121

H. KUSANAGI, M. TAKASE, Y. CHATANI, and H. TADOKORO: Crystal Structure of Isotactic Poly(4-methyl-1-Pentene) 131

T. R. EARNEST, JR. and W. J. MACKNIGHT: Effect of Hydrogen Bonding and Ionic Aggregation on the Melt Rheology of an Ethylene– Methacrylic Acid Copolymer and its Sodium Salt 143

S. M. AHARONI and P. J. HARGET: On the Location of Chain-Ends in Rapidly Crystallized Poly(ethylene Terephthalate) 159

M. MILES and H. GLEITER: Observation of Preferred (Epitaxial) Orientation Relationships between Polyethylene Crystals 171

M. ASHIDA, Y. UEDA, and T. WATANABE: Epitaxial Growth of Low Molecular Weight Polypropylene from Vapor Phase 179

Issue 2, February 1978

J. W. HALLEY, P. H. KLEBAN, and J. R. ONFFROY: Theory of Second-Order Raman Scattering from a Zigzag Chain with Application to Polyethylene 189

A. J. HUGHES and J. P. BELL: Selective Degradation of Nylon 6,6. I. Description of the Degradation Technique and Preliminary Morphological Characterization 201

J. P. BELL and A. J. HUGHES: Selective Degradation of Nylon 6,6. II. Application of the Degradation Technique to Commercially Drawn Fibers 215

J. VANDERSCHUEREN and A. LINKENS: Stability of Heterocharges in Poly(methyl Methylacrylate) Thermoelectrets. II. Effect of γ-Irradiation on Thermally Stimulated Current Spectra 223

R. F. REID and I. SOUTAR: Intramolecular Excimer Formation in Macromolecules. I. Energy Migration and Excimer Formation in Copolymers Exhibiting Nearest-Neighbor Excimer Interactions 231

P. F. MIJNLIEFF and F. W. WIEGEL: Intrinsic Viscosity and Friction Coefficient of Polymer Molecules in Solution: Porous Sphere Model 245

F. HORII and R. KITAMARU: Refined NMR Analysis of the Phase Structure of Solution-Crystallized Linear Polyethylene 265

T. HASHIMOTO, H. KAWASAKI, and H. KAWAI: Crystal and Amorphous Orientation Behavior of Poly(chlorotrifluoroethylene) Films in Relation to Crystalline Superstructure 271

A. MEHTA, U. GAUR, and B. WUNDERLICH: Equilibrium Melting Parameters of Poly(ethylene Terephthalate) 289

C. J. P. HOOGERVORST, J. A. M. SMIT, and A. J. STAVERMAN: Nonstationary Diffusion of Polystyrenes through a Cellophane Membrane 297

Y. L. CHENG and D. C. BONNER: Solubility of Nitrogen and Ethylene in Molten, Low-Density Polyethylene to 69 Atmospheres 319

T. TANAKA and K. SHIBAYAMA: Low Temperature Relaxation in Polypyromellitimide .. 335

L. J. BURNETT, C. L. ROTTLER, and D. H. LAUGHON: Proton NMR Study of Molecular Motion in Polydimethylsiloxane 341

E. J. KRAMER, H. G. KRENZ, and D. G. AST: Mechanical Properties of Methanol Crazes in Poly(methyl Methacrylate) 349

NOTES

H. KYOTANI, H. KANETSUMA, K. SASAKI, and M. ŌYA: Effect of Organic Solvents on the Conformational Stability of Poly(β-benzyl L-Aspartate) Films 367

R. L. MILLER and R. F. BOYER: Chain Folding and Cross-Sectional Area per Chain 371

J. RUNT and I. R. HARRISON: On the Location of Chain Ends in Polyethylene Single Crystals 375

Issue 3, March 1978

J. T. EVANS and J. R. WHITE: Elastic Deformation in Polyethylene Crystals Subjected to a Tensile Stress Distributed over a Fold Surface 379

J. R. WHITE: Bending Contribution to Line-Broadening in Polymer Diffraction 387

J. R. WHITE: Collapse of Pyramidal Polyethylene Crystals 395

T. IGARASHI: Mechanics of Peeling of Rubbery Materials. II. Initiation and Propagation of Peeling 407

K. TAKAHASHI, M. IKEDA, K. HARAKAWA, K. TANAKA, and T. SAKAI: Analysis of the Effect of Interfacial Slippage on the Elastic Moduli of a Particle-Filled Polymer 415

L. ZLATKEVICH and M. SHEPELEV: Study of Latex Film Structure by Radiothermoluminescence 427

K. C. YEE and R. R. CHANCE: Synthesis and Properties of a New Polydiacetylene: Poly[1,6-di(*N*-Carbazolyl)-2,4-Hexadiyne] 431

J. P. JARRY and L. MONNERIE: Orientation and Molecular Dynamics in Uniaxial Polymers. I. Theory of Fluorescence Polarization 443

E. A. DIMARZIO and R. J. RUBIN: Dynamics of a Polymer Attached to a Surface: Bead and Spring Model 457

V. M. PATEL, G. N. PATEL, N. GVOZDIC, C. S. HSU, and M. DOLE: Radiation Chemistry of Polyethylene. XIV. Allyl Radical Decay Kinetics in Different Types of Polyethylene 467

T. M. STOECKEL, J. BLASIUS, and B. CRIST: Chain Rupture and Tensile Deformation of Polymers 485

E. A. BOUCHER and P. M. HINES: Properties of Aqueous Salt Solutions of Poly(ethylene Oxide): Thermodynamic Quantities Based on Viscosity and Other Measurements ... 501

N. OHNO, T. OKUDA, K. NITTA, and S. SUGAI: Conformational Transition of Copolymer of Maleic Acid and Styrene in Aqueous Solution. III 513

J. SPĚVÁČEK: Association of Stereoregular Poly(methyl Methacrylates) in Dilute Solution. Proton NMR Study 523

H. SUSSNER and K. DRANSFELD: Importance of the Metal–Polymer Interface for the .... Piezoelectricity of Polyvinylidene Fluoride 529

C. I. CHUNG and M. I. LIN: Nature of Melt Rheological Transition in a Styrene–Butadiene–Styrene Block Copolymer 545

K. C. VALANIS and U. YILMAZER: An Endochronic Prediction of the Variability in Fracture Times of Polymers 555

Erratum

M. TIRRELL and M. F. MALONE: Stress-Induced Diffusion of Macromolecules 565

Information for Contributors 567

Issue 4, April 1978

C. T. MEYER and M. PINERI: Ion Clustering in a Butadiene, Styrene, 4-Vinylpyridine Terpolymer Crosslinked by Coordination with Iron(III) Chloride 569

D. L. SIEGFRIED, J. A. MANSON, and L. H. SPERLING: Viscoelastic Behavior and Phase Domain Formation in Millar Interpenetrating Polymer Networks of Polystyrene 583

A. GARTON, R. F. STEPANIAK, D. J. CARLSSON, and D. M. WILES: Some Effects of Melt-Induced Orientation on Drawing of Polypropylene Monofilaments 599

T. R. STEGER and L. E. NIELSEN: Microvoid Formation during Deformation of High-Impact Polystyrene 613

T. ODIJK and A. C. HOUWAART: On the Theory of the Excluded-Volume Effect of a Polyelectrolyte in a 1-1 Electrolyte Solution 627

S. PAOLETTI, F. VAN DER TOUW, and M. MANDEL: Dielectric Properties of Maleic Acid–Ethylene Copolymer in Salt-Free Aqueous Solutions 641

I. HAVLÍČEK, M. ILAVSKÝ, and J. HROUZ: Dependence of Cooperative Relaxation of Amorphous Polymers on Diluent Concentration 653

I. D. RICHARDSON and I. M. WARD: Temperature Dependence of the Poisson's Ratios in Low-Density Polyethylene with Parallel Lamellas Morphology 667

O. YANO, T. KAMOSHIDA, S. SEKIYAMA, and Y. WADA: Dielectric Loss of High-Density Polyethylene below 4.2°K 679

R. S. FROST, R. E. BARKER, JR., and R. Y. S. CHEN: Influence of Pressure and Chemical Structure on the Thermal Conductivity of Vitreous Poly(alkyl Methacrylates). II. Relation to Free Volume 689

J. ROOTS and B. NYSTRÖM: Concentration and Temperature Dependence of the Refractive Index Increment of a Polystyrene Sample in *trans*-Decalin 695

R. P. KAMBOUR and C. L. GRUNER: Effects of Polar Group Incorporation on Crazing of Glassy Polymers: Styrene–Acrylonitrile Copolymer and a Dicyano Bisphenol Polycarbonate 703

S. IKENO, M. YOKOYAMA, and H. MIKAWA: Electrically Conductive Elastomeric TCNQ Complexes 717

Y. ITO and S. SHISHIDO: Non-Newtonian Flow Curves Including Lower and Upper Newtonian Regions for Dilute and Moderately Concentrated Polystyrene Solutions 725

S. A. STERN and A. H. DE MERINGO: Solubility of Carbon Dioxide in Cellulose Acetate at Elevated Pressures 735

NOTES

A. R. RAMOS, F. S. BATES, and R. E. COHEN: Importance of the Massa Correction for Loss Tangent Measurements on the Rheovibron 753

Issue 5, May 1978

C. HARWOOD, G. H. WOSTENHOLM, B. YATES, and D. V. BADAMI: Thermodynamic Properties of Phenol–Formaldehyde Resin 759

H. NAKANISHI, K. UENO, and Y. SASADA: Four-Center-Type Photopolymerization in the Crystalline State. XI. Crystal Structure of *p*-Phenylenediacrylic Acid Diethyl Ester above the Crystal Transition Point 767

W. F. PARSONS, M. A. FAUST, and L. E. BRADY: Morphology and Rheology of Peel of Model Adhesives 775

T. IIJIMA, T. UEMURA, S. TSUZUKU, and J. KOMIYAMA: Diffusion of Cyclodextrins in Aqueous Polymer Solutions 793

M. E. R. SHANAHAN and J. SCHULTZ: Influence of Wetting Properties of the Liquid on Environmental Stress Cracking of Polyethylene at High Stress 803

C. METHERELL: Effect of Ozone on Creep of Vulcanizates 813

M. M. COLEMAN and R. J. PETCAVICH: Fourier Transform Infrared Studies on the Thermal Degradation of Polyacrylonitrile 821

A. BULEON and H. CHANZY: Single Crystals of Cellulose II 833

H. ARAI, K. YAMAGUCHI, H. MITOMO, and I. KURIYAMA: Fine Structure of Polyethylene Prepared by γ-Ray-Induced Polymerization in Various Solvents. III. Selective Degradation with Ozone 841

N. HADJICHRISTIDIS and J. ROOVERS: Conformation of Poly(isoprene-*g*-Styrene) in Dilute Solution 851

R. R. CHANCE and G. N. PATEL: Solid-State Polymerization of a Diacetylene Crystal: Thermal, Ultraviolet, and γ-Ray Polymerization of 2,4-Hexadiyne-1,6-Diol *Bis*-(*p*-Toluene Sulfonate) 859

W. R. KRIGBAUM and F. SALARIS: Thermodynamics of Nematic Phases Formed from Semiflexible Chain Polymers 883

S. E. RICKERT, E. BAER, J. C. WITTMANN, and A. J. KOVACS: Epitaxial Crystallization of Polyesters on Inorganic and Organic Substrates 895

E. IKADA, T. SUGIMURA, and T. WATANABE: Dielectric Properties of Oligomers. VI. End-Group Effects in Vinyl Acetate and Methyl Methacrylate Oligomers 907

J. MEISSNER: Combined Constant Strain Rate and Stress Relaxation Test for Linear Viscoelastic Studies 915

K. MATSUSHIGE and T. TAKEMURA: Melting and Crystallization of Poly(vinylidene Fluoride) under High Pressure 921

NOTES

P. SIMON and GY. ARGAY: Revised Atomic Coordinates of Crystalline Nylon-6 935

M. G. NORTHOLT and H. A. STUUT: Determination of the Crystal Density of Polymers by X-Ray Diffraction 939

T. FUJIMURA, N. HAYAKAWA, and I. KURIYAMA: Trapping Regions for Allyl Radicals in Irradiated Polyethylene 945

Issue 6, June 1978

E. MARCHAL, H. BENOIT, and O. VOGL: Comparison of Head-to-Head and Head-to-Tail Polystyrenes by Thermally Stimulated Discharge 949

T. S. CHOW: Effect of Particle Shape at Finite Concentration on the Elastic Moduli of Filled Polymers 959

T. S. CHOW: Effect of Particle Shape at Finite Concentration on Thermal Expansion of Filled Polymers 967

M. MOSER and M. BOUDEULLE: Isotactic Poly(pentene-1): Polymorphism of Form I ... 971

D. RADIC and L. GARGALLO: Properties of Vinylpyrrolidone-*tert*-Butylphenyl Methacrylate Copolymers in Solution 977

H. BLOCK, W. D. IONS, and S. M. WALKER: Observations on the Dielectric Anisotropy of Solutions of Flexible Polymers in Flow 989

T. NORISUYE and H. FUJITA: Intrinsic Viscosity and Translational Friction Coefficient of Nondraining Flexible Rings with Small Excluded Volume 999

D. DAY and J. B. LANDO: Structural Relationships in the Solid-State Synthesis of Poly(*bis*-Phenyl Glutarate Diacetylene) 1009

D. E. PARRY and J. M. THOMAS: Exploratory Analysis of the Influence of Substitutional Impurities on the Electronic Properties of Poly(sulfur Nitride) 1023

R. W. ROSSER, N. NEMOTO, J. L. SCHRAG, and J. D. FERRY: Infinite-Dilution Viscoelastic Properties of Sodium Poly(styrene Sulfonate) 1031

R. FOLLAND, J. H. STEVEN, and A. CHARLESBY: Proton Spin Relaxation in Liquid Polydimethylsiloxane: Molecular Motion and Network Formation 1041

H. M. LI and J. H. MAGILL: Crystallization of Poly(tetramethyl-*p*-Silphenylene-Dimethylsiloxane) (TMPS–DMS) Block Copolymers: Morphology and Kinetics 1059

S. H. JOSEPH: Cooperative Model for the Mechanical Deformation of Polymers 1071

N. BROWN, B. D. METZGER, and Y. IMAI: An Equation for Creep in Terms of Craze Parameters 1085

R. A. WEISS, R. W. LENZ, and W. J. MACKNIGHT: Properties of Polyethylene Modified with Phosphonate Side Groups. II. Dynamic Mechanical Behavior 1101

B. ERMAN and P. J. FLORY: Rubber Elasticity in the Range of Small Uniaxial Tensions and Compressions. Results for Poly(dimethylsiloxane) 1115

L. LEPORI and V. MOLLICA: Volumetric Properties of Dilute Aqueous Solutions of Poly(ethylene Glycols) 1123

NOTES

D. E. AXELSON and L. MANDELKERN: An Upper Limit to the Glass Temperature of Linear Polyethylene as Determined by High-Field Carbon-13 Fourier Transform Nuclear Magnetic Resonance 1135

Issue 7, July 1978

G. P. ANDRIANOVA, B. A. ARUTYUNOV, and YU. V. POPOV: Calorimetric Studies of Poly(ethylene Terephthalate) Stretching Over a Wide Temperature Range 1139

I. GUTZOW, V. DOCHEV, E. PANCHEVA, and K. DIMOV: Induced Crystallization of Poly(ethylene Terephthalate) on Small Metallic Nucleating Particles 1155

R. N. HAWARD, H. E. DANIELS, and L. R. G. TRELOAR: Molecular Conformation and Craze Fracture 1169

G. R. STROBL and W. HAGEDORN: Raman Spectroscopic Method for Determining the Crystallinity of Polyethylene 1181

E. J. KRAMER and R. A. BUBECK: Growth Kinetics of Solvent Crazes in Glassy Polymers 1195

Y. TAKAHASHI and H. TADOKORO: Electron Density Calculation for Polyoxymethylene in Cylindrical Coordinates by a New Fourier Method 1219

M. MANSFIELD and R. H. BOYD: Molecular Motions, the α Relaxation, and Chain Transport in Polyethylene Crystals 1227

P. C. PAINTER, J. RUNT, M. M. COLEMAN, and I. R. HARRISON: Effect of Polymorphism on the C—H Stretching Region of the Infrared Spectrum of Polyethylene 1253

P. ZOLLER: Specific Volume of Polysulfone as a Function of Temperature and Pressure 1261

I. W. GILMOUR, A. TRAINOR, and R. N. HAWARD: The Thermoelastic Effect in Glassy Polymers 1277

I. GILMOUR, A. TRAINOR, and R. N. HAWARD: Calculation of the Grüneisen Constant of Glassy Polymers from Thermoelastic Data 1291

R. G. C. ARRIDGE and P. J. BARHAM: A Theory for the Drawing of Oriented Crystalline Polymers 1297

NOTES

S. Y. HOBBS: Characterization of Rubber-Toughened Plastics by Scanning Electron Microscopy 1321

H. MIYAJI and K. ASAI: Effects of Annealing on Lattice Constants of Branched Polyethylene 1325

Issue 8, August 1978

R. J. MATYI and B. CRIST, JR.: Small-Angle X-Ray Scattering by Nylon 6 1329

E. M. BARRALL, II, T. C. CLARKE, and A. R. GREGGES: A Differential Scanning Calorimeter Study of the Crystal Forms and Polymerization Kinetics of 2,4-Hexadiynyl-1,6-*bis*(*p*-Toluenesulfonate) 1355

W. MEYER, G. LIESER, and G. WEGNER: Four-Center Photopolymerization. A Heterogeneous Topochemical Solid-State Reaction 1365

A. EISENBERG and E. TREPMAN: Ion-Aggregation and Thermal Expansion in Styrene-Based Ionomers 1381

E. GIPSTEIN, E. M. BARRALL, II, D. Y. YOON, and J. LYERLA: Thermal Properties of Some Hydrogenated Poly(α-Methyl Styrenes) 1389

I. ZUPANČIČ, G. LAHAJNAR, R. BLINC, D. H. RENEKER, and A. PETERLIN: NMR Study of Diffusion of Butane in Linear Polyethylene 1399

I. H. HALL, M. G. PASS, and N. N. RAMMO: The Structure and Properties of Oriented Fibers of Poly(pentamethylene Terephthalate). I. Synthesis of Polymer and Preparation of Two Different Crystalline Phases 1409

S. K. GARG and S. S. STIVALA: Assessment of Branching in Polymers from Small-Angle X-Ray Scattering (SAXS) 1419

M. ITO, M. KUBO, A. TSURUTA, and K. TANAKA: The Relationship Between Chemical Structure and Viscoelastic Properties of Linear Aliphatic Polyesters 1435

H. SASABE and C. T. MOYNIHAN: Structural Relaxation in Poly(vinyl Acetate) 1447

I. NARISAWA, M. ISHIKAWA, and H. OGAWA: Delayed Yielding of Polycarbonate Under Constant Load 1459

R. SIMHA and R. K. JAIN: Statistical Thermodynamics of Polymer Crystal and Melt ... 1471

P. ZOLLER: Analysis of the Equations of State of Polyolefin Melts in Terms of the Simha–Somcynsky Hole Theory 1491

K. P. GHIGGINO, R. D. WRIGHT, and D. PHILLIPS: Time-Resolved Fluorescence Spectroscopy of Polystyrene and Poly(1-Vinylnaphthalene) 1499

NOTES

P. J. LEMSTRA, A. KELLER, M. CUDBY: Gelation Crystallization of Poly(vinyl Chloride) 1507

J. H. O'DONNELL, C. A. SMITH, and D. J. WINZOR: Evaluation of Radiation Chemical Yields from the Reciprocal Relationship between Irradiation Dose and Weight-Average Molecular Weight 1515

Issue 9, September 1978

F. J. MARTINELLI: A New Technique for Studying Gelation in Polyesters 1519

P. J. MAKAREWICZ and G. L. WILKES: Diffusion Studies of Poly(ethylene Terephthalate) Crystallized by Nonreactive Liquids and Vapors 1529

P. J. MAKAREWICZ, G. L. WILKES, and Y. BUDNITSKY: Mechanical Property Studies of Poly(ethylene Terephthalate) Crystallized by Nonreactive Liquids 1545

P. J. MAKAREWICZ and G. L. WILKES: Small-Angle X-Ray Scattering and Crystallization Kinetics of Poly(ethylene Terephthalate) Crystallized in a Liquid Environment 1559

R. BENSON, J. MAXFIELD, D. E. AXELSON, and L. MANDELKERN: Gelation and Precipitation of Copolymers from Solution 1583

R. G. SNYDER, S. J. KRAUSE, and J. R. SCHERER: Determination of the Distribution of Straight-Chain Segment Lengths in Crystalline Polyethylene from the Raman LAM-1 Band 1593

K. BERGMANN: Study of the Molecular Motions of Polyethylene by Line-Shape Analysis of Broad-Line Proton NMR Spectra 1611

W. WENIG: The Microstructure of Poly(vinyl Chloride) as Revealed by X-Ray and Light Scattering 1635

H. L. FRISCH: Simultaneous Nonlinear Diffusion of a Solvent and Organic Penetrant in a Polymer 1651

J. HOLOUBEK: An Approximate Method of Determination of Birefringence of Circular Fibers from Intensity Distribution of Backscattered Light 1665

W. L. WU: A Thermodynamic Approach to the Stress-Induced Crystallization in Cross-Linked Rubbers 1671

A. A. JONES, R. P. LUBIANEZ, M. A. HANSON, and S. L. SHOSTAK: Interpretation of Spin Relaxation in Polyisobutylene in Terms of Specific Motions 1685

NOTES

R. J. FLEMING: Kinetic Order of Thermoluminescence 1703

M. BOHDANECKY and V. PETRUS: Graphical Treatment of Sedimentation Coefficients of Randomly Branched Polymers 1705

Issue 10, October 1978

J.-S. WANG, J. R. KNOX, and R. S. PORTER: Steady-State and Dynamic Rheology of Poly(1-Olefin) Melts 1709

S. KOJIMA, C. R. DESPER, and R. S. PORTER: Influence of Extrusion Ratio on the Thermal Properties and Morphology of Ultradrawn High-Density Polyethylene 1721

S. KOJIMA and R. S. PORTER: Influence of Extrusion Ratio on the Tensile Properties of Ultradrawn Polyethylene 1729

J. A. SAYRE, S. R. SWANSON, and R. H. BOYD: The Effect of Pressure on the Volume and the Dielectric Relaxation of Linear Polyethylene 1739

S. MASHIMO, S. YAGIHARA, and Y. IWASA: Dielectric Study of Side-Group Rotation of Methyl Methacrylate in Copolymers 1761

J. LE G. GILCHRIST: Low-Temperature Dielectric Spectrum of Thermally Oxidized Polyethylene 1773

T. HASHIMOTO, H. SASAKI, M. AIURA, and Y. KATO: High-Speed Aqueous Gel-Permeation Chromatography 1789

O. SUMITA, A. FUKUDA, and E. KUZE: An ESR Study of Polymer–Cu(II) Complexes in Poly(vinyl Alcohol), Polyacrylamide, and Poly(vinyl Pyrrolidone) Films 1801

P. GODARD, J. J. BIEBUYCK, M. DAUMERIE, H. NAVEAU, and J. P. MERCIER: Crystallization and Melting of Aqueous Gelatin 1817

R. R. PARENT and E. V. THOMPSON: Fracture Surface Morphology and Phase Relationships of Polystyrene/Poly(methyl Methacrylate) Systems. I. Low-Molecular-Weight Polystyrene in Poly(methyl Methacrylate) 1829

P. WICHACHEEWA and A. E. WOODWARD: Kinetics of Epoxidation of Poly(*trans*-1,4-Butadiene) Crystals in Suspension 1849

Y. TAKAI, K. MORI, T. MIZUTANI, and M. IEDA: Thermoluminescence from Photoexcited Polyethylene Terephthalate 1861

B. JASSE and J. L. KOENIG: Fourier Transform Infrared Analysis of the Stereoregularity of Atactic Polystyrene 1869

NOTES

R. E. FLORIN: Free Radicals in Stretched Vinylidene Chloride Copolymer 1877

T. P. RUSSELL, J. KOBERSTEIN, R. PRUD'HOMME, A. MISRA, R. S. STEIN, J. W. PARSONS, and R. L. ROWELL: A Calibration Procedure for a Low-Angle Light-Scattering Apparatus 1879

P. G. DE GENNES: Scaling Laws for Incompatible Polymer Solutions 1883

H. R. BROWN: Flory-Huggins-Rehner Theory and the Swelling of Semicrystalline Polymers by Organic Fluids 1887

J. C. WITTMANN and R. ST. JOHN MANLEY: Epitaxial Crystallization of Polyesters on Aromatic Hydrocarbon Substrates 1891

Issue 11, November 1978

C. M. BALIK and A. J. HOPFINGER: A Model for the Adsorption of Poly(γ-Benzyl-*L*-Glutamate) from Solution onto Alkali-Halide Substrates 1897

Z. PRIEL and A. SILBERBERG: The Thickness of Adsorbed Polymer Layers at a Liquid-Solid Interface as a Function of Bulk Concentration 1917

J. SHIMADA and H. YAMAKAWA: First-Order Peturbation Calculations of Intrinsic Viscosities of Flexible Linear and Ring Polymers with Excluded Volume: Comments on the Papers of Fujita et al. 1927

G. E. SWEET and J. P. BELL: Selective Chemical Etching of Poly(ethylene Terephthalate) Using Primary Amines 1935

W. J. KOROS and D. R. PAUL: CO_2 Sorption in Poly(ethylene Terephthalate) above and below the Glass Transition 1947

T. HASHIMOTO, T. SAKAI, and S. MIYATA: Thermally Stimulated Current from Extended-Chain Crystals of Polyethylene 1965

J. PILAŘ and K. ULBERT: An ESR Study of PMMA Mechanoradicals and of Their Interaction with Oxygen 1973

G. AVITABILE, R. NAPOLITANO, and F. RIVA: Elastic Modulus of the Crystalline Phase of Poly(*cis* 1,4-Isoprene) 1983

Y. TAKAHASHI, T. KURUMIZAWA, H. KUSANAGI, and H. TADOKORO: Molecular Conformation and Crystal Structure of the β Form of Poly(ethylene Oxybenzoate) 1989

M. MEYER, J. VANDER SANDE, and D. R. UHLMANN: On the Structure of Glassy Polymers. VI. Electron Microscopy of Polycarbonate, Poly(ethylene Terephthalate), Poly(vinyl Chloride), and Polystyrene 2005

A. G. GIBSON and I. M. WARD: Hydrostatic Extrusion of Linear Polyethylene: Effects of Molecular Weight and Product Diameter 2015

P. D. COATES and I. M. WARD: Hydrostatic Extrusion of Polyoxymethylene 2031

T. TAKAHASHI and H. OKAZAKI: Epitaxial Crystallization of Polyoxymethylene during Cationic Polymerization of Trioxane 2049

G. E. SWEET and J. P. BELL: Chemical Degradative Stress Cracking of Poly(ethylene Terephthalate) Fibers 2057

NOTES

H. N. YOON and A. EISENBERG: Methyl Group Tunneling and Viscoelastic Relaxation in Poly(α-Methyl Styrene) 2079

G. CAPACCIO, I. M. WARD, and M. A. WILDING: The Plastic Deformation of γ-Irradiated Linear Polyethylene 2083

Issue 12, December 1978

L. ARAIMO, F. DE GANDIA, V. VITTORIA, and A. PETERLIN: Mechanical Transport Properties of Drawn Low-Density Polyethylene 2087

S. KRIMM and S. L. HSU: Longitudinal Acoustic Mode in Polymers. IV. LAM-3 of the General Perturbed Rod and Applications to Parafins and Polymers 2105

M. E. R. ROBINSON, D. I. BOWER, W. F. MADDAMS: Molecular Orientation in Poly(vinyl Chloride) Studied by Raman Spectroscopy and Birefringence Measurements 2115

S. B. WARNER: Ultrahigh Draw Ratios in Polyethylene: Molecular Weight Effects 2139

A. A. SOETEMAN, J. P. M. ROELS, J. A. P. P. VAN DIJK, and J. A. M. SMIT: Separation of Dextrans by Gel Permeation Chromatography 2147

B. JASSE, R. S. CHAO, and J. L. KOENIG: Laser Raman Scattering in Uniaxially Oriented Atactic Polystyrene 2157

W. J. KOROS and D. R. PAUL: Transient and Steady-State Permeation in Poly(ethylene Terephthalate) above and below the Glass Transition 2171

I. H. HALL and N. N. RAMMO: The Structure and Properties of Oriented Fibers of Poly-(pentamethylene Terephthalate). II. Structural Analysis of Two Different Crystalline Phases by X-Ray Crystallography 2189

D. A. JONES, M. LOPEX DE HARO, and D. PUGH: A Simple Model Illustrative of Some Features of Polymer Dynamics 2215

A. L. RENNINGER and D. R. UHLMANN: Structure of Glassy Polymers. V. Small-Angle X-Ray Scattering from Polystyrene 2237

Author Index 2245

Subject Index 2255